

# European Offshore Wind Deployment Centre

# O&M Offshore Environmental Management Plan

# ABE-ENV-DB-0012

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Revision	Date	Revision changes
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3	30/08/2017	Further Clarifications required by MS-LOT
4	18/12/2019	Updated for Operation and Maintenance Phase
5	10/03/2020	Addressing MS-LOT Comments on Revision 4
6	21/04/2020	For consultation
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8	16/10/2020	For consultation



## Operation and Maintenance (O&M) Offshore Environmental Management Plan Overview

#### Purpose and objectives of the Plan

This Operation and Maintenance (O&M) Offshore Operation Environmental Management Plan (O&M OEMP) has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 Consent (S.36) issued to Aberdeen Offshore Wind Farm Limited (AOWFL).

The overall aim of this O&M OEMP is to set out the procedures for environmental management and monitoring during operation and maintenance (O&M) phase of the Development.

This O&M OEMP confirms that the environmental management employed aligns with those considered in the original Application, and that environmental mitigation and monitoring measures detailed in the Application will be applied, where relevant, during the O&M phase the project.

All relevant procedures undertaken throughout during the O&M phase of the Development must comply with the procedures set out in this O&M OEMP.

#### Scope of the Plan

This O&M OEMP covers, in line with the requirements of the S.36 Consent conditions, the following:

- The roles and responsibilities of key personnel with respect to environmental management;
- Mitigation measures to prevent significant adverse impacts to environmental interests (including marine mammal mitigation);
- Pollution prevention measures;
- Waste management measures;
- Mechanisms for reporting to Marine Scotland Licencing and Operations Team (MS-LOT) and stakeholders on environmental issues and compliance with the O&M OEMP;
- Environmental Monitoring; and
- Confirmation that the O&M methods described within this O&M OEMP align with those considered in the Environmental Statement (ES), Supplementary Environmental Information Statement (SEIS), Marine Licence, S.36 Consent and Marine Licence Application.



#### Structure of the Plan

This O&M OEMP is structured as follows:

Sections 1 and 2 set out the scope and objectives of the O&M OEMP and set out statements of compliance.

Section 3 sets out the process for making updates and amendments to this document.

Section 4 provides an overview of the Development.

Section 5 details the environmental management framework.

Section 6 provides information on the environmental management to be implemented during the O&M Phase of the Development.

Section 7 presents the environmental research and monitoring programme.

Section 8 provides the Marine Mammal Protection Plan

Section 9 provides a reference list for documents cited within the Plan.

Appendix A - Legislation register

Appendix B– Incident Reporting Template

- Appendix C– Offshore Wind & Marine Renewables Dropped Objects Form
- Appendix D Vessel Management Plan

Appendix E – Navigational Safety Plan

- Appendix F Blackdog Firing Range Management Plan
- Appendix G Protocol of Archaeological Discoveries
- Appendix H Marine Pollution Contingency Plan
- Appendix I Waste Management Plan

Appendix J – Compliance with ES Rochdale Envelope Parameters

#### Plan Audience

This O&M OEMP is intended to be referred to by relevant personnel involved during the O&M Phase of the EOWDC, including AOWFL personnel, Contractors and Subcontractors. Compliance with this O&M OEMP will be monitored by AOWFL and the Environmental Specialist and reported to MS-LOT.

#### Plan Locations

Copies of this O&M OEMP are to be held in the following locations:

- At AOWFL Head Office;



- At the premises of any agent, Contractor or Subcontractor (as appropriate) acting on behalf of AOWFL;

- At the AOWFL Marine Coordination Centre; and
- With the Environmental Specialist.



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# LIST OF ABBREVIATIONS AND DEFINITIONS

# **Defined Terms**

Term	Definition
the 2010 Act	The Marine (Scotland) Act 2010.
Application	The Application and Environmental Statement submitted to MS-LOT, by the Company on 1 <sup>st</sup> August 2011 and Supplementary Environmental Information Statement submitted to MS-LOT by the Company on 6th August 2012 for consent under section 36 of the Electricity Act 1989 and for a Marine Licence under 20(1) of the Marine (Scotland) Act 2010, for the operation of the European Offshore Wind Deployment Centre (EOWDC) electricity generating station approximately 2 km off the coast of Aberdeenshire in Aberdeen Bay with a generation capacity of up to 100 MW.
Blackdog Firing Range Management Plan	The Management Plan required to be submitted for approval under Condition 10 of the section 36 Consent.
Cables	Offshore Export Cables and Inter-array cables.
Company	Aberdeen Offshore Wind Farm Limited (AOWFL). AOWFL is wholly owned by Vattenfall and has been established to develop, finance, construct, operate, maintain and decommission the European Offshore Wind Deployment Centre.
Completion of the Works	The date on which the Works have been installed or the Works have been deemed to be complete by the Licensing Authority, as defined by the Marine Licence.
Consent Plans	The plans, programmes or strategies required to be approved by MS- LOT (in consultation with the appropriate stakeholders) in order to discharge conditions attached to the Offshore Consents.
Contractors	Any Contractor/Supplier (individual or firm) working on the project, hired by AOWFL.
Decommissioning of the Works	The removal of the Works from the seabed, demolishing or dismantling the Works.
Decommissioning Programme (DP)	The Programme to be submitted to the Secretary of State <sup>1</sup> under section 105(2) of the Energy Act 2004 (as amended) and as required for approval under Condition 6 of the section 36 Consent.
Development	The European Offshore Wind Deployment Centre electricity generating station in Aberdeen Bay, approximately 2 km east of Blackdog, Aberdeenshire, as described in Annex 1 of the section 36 Consent.
Development Area	The area which includes the wind turbine generators, the Inter-array cables and part of the Offshore Export Cable Corridor, including any

<sup>&</sup>lt;sup>1</sup> The responsibility for approving decommissioning programmes for Scottish projects has now been transferred to the Scottish Ministers.



Term	Definition
	other works, as shown in Part 4 of the Marine Licence (named as Lease Boundary in the Marine Licence).
Electricity Act	the Electricity Act 1989 (as amended).
Environmental Statement (ES)	The Statement submitted by the Company on 1 August 2011 as part of the Application.
Generation Station	Comprising the Wind Turbine Generators and Inter-array cables.
Inter-array cables	Electricity cables connecting the WTGs.
Licensable Marine Activity	Any activity listed in section 21(1) of the 2010 Act.
the Licensee	Aberdeen Offshore Wind Farm Limited, a company registered in Scotland (registered number SC278869).
Licensing Authority	Scottish Ministers, as defined by the Marine Licence. It is important to note that Marine Scotland is acting on behalf of Scottish Ministers.
Marine Licence	Licence issued by MS-LOT under Part 4 of the Marine (Scotland) Act 2010 for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Export Cable Corridor.
Marine Pollution Contingency Plan (MPCP)	The Plan to be submitted for approval under Condition 3.1.11 of the Marine Licence.
Navigational Safety Plan (NSP)	The Plan to be submitted for approval under Condition 26 of the section 36 Consent.
Offshore Consents	<ul> <li>Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC;</li> <li>Declarations granted under section 36A of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places within the territorial sea where structures forming part of the Offshore Wind Farm are to be located; and</li> <li>Marine Licence under Part 4 of the Marine (Scotland) Act 2010 for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Offshore Export Cable.</li> </ul>
Offshore Export Cables (OECs)	The offshore export cables (and all associated cable protections) connecting the WTGs to the onshore export cables.
Offshore Export Cable Corridor (OECC)	The consented area within which the offshore export cables will be laid up to MHWS.
Offshore Export Cable Corridor Landfall	The location where the offshore export cables come ashore.
Offshore wind farm	An offshore generating station which includes proposed WTGs, inter- array cables, meteorological masts and other associated and ancillary elements and works (such as metocean buoys). This includes all permanent and temporary works required.



Term	Definition
Offshore Environmental Management Plan (OEMP)	The Plan to be submitted for approval under Condition 17 of the section 36 Consent.
Planning Authorities	Aberdeenshire Council and Aberdeen City Council.
Section 36 Consent	Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC.
Scottish Marine Area	The area of sea within the seaward limits of the territorial sea of the United Kingdom adjacent to Scotland and includes the bed and subsoil of the sea within that area.
Subcontractor	Any Contractor/Supplier (individual or firm) providing services to the project, hired by the Contractors (not AOWFL).
Supplementary Environmental Information Statement (SEIS)	The Statement (Addendum) submitted to MS-LOT by the Company on 6 <sup>th</sup> August 2012 as part of the Application.
the Statement	The UK Marine Policy Statement 2011
Vessel Management Plan (VMP)	The Plan to be submitted for approval under Condition 24 of the Section 36 Consent.
the Works	The European Offshore Wind Deployment Centre electricity generating station in Aberdeen Bay, approximately 2 kilometres east of Blackdog, Aberdeenshire, as described by the Marine Licence.



# Acronym Definitions

Term	Definition
ADP	As Low As Reasonably Practicable (ALARP) Design Procedure
ADR	European agreement concerning the carriage of dangerous goods
AEZ	Archaeological Exclusion Zone
AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
AOWFL	Aberdeen Offshore Wind Farm Limited
BEIS	UK Department of Business Energy and Industrial Strategy
BFRMP	Blackdog Firing Range Management Plan
BWM	International Convention for the Control and Management of Ships' Ballast Water and Sediments
САА	Civil Aviation Authority
CIS	Crisis, Incidents and Security
CSV	Construction Support Vessel
CTV	Crew Transport Vessel
COSHH	Control of Substances Hazardous to Health
DECC	UK Department of Energy and Climate Change, now BEIS
DP	Decommissioning Programme
DS	Design Statement
EIA	Environmental Impact Assessment
Electricity Act	the Electricity Act 1989 (as amended)
EMP	Environmental Management Plan
EOWDC	European Offshore Wind Deployment Centre
EPS	European Protected Species
ES	Environmental Statement
EU	European Union
EWC	European Waste Catalogue
FEPA	Food & Environmental Protection Act
FLO	Fisheries Liaison Officer
GRT	Gross Registered Tonnage
HCFC	Hydrochlorofluorocarbon



Term	Definition
HFC	Hydrofluorocarbon
HSE	Health and Safety Executive
HSSE	Health, Safety, Security and Environment
IALA	International Association of Marine Ads to Navigation and Lighthouse Authorities
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
IRF	Incident Report Form
ISM	International Safety Management Code
JNCC	Joint Nature Conservation Committee
km	Kilometre
MAIB	Marine Accident Investigation Branch
MARPOL	The International Convention for the Prevention of Pollution from Ships
MCA	The Maritime and Coastguard Agency
MCC	Marine Coordination Centre
MFSU	Manufacture, formulation, supply and use
MHWS	Mean High Water Springs
ММО	Marine Management Organisation
ММРР	Marine Mammal Protection Plan
МРСР	Marine Pollution Contingency Plan
MS	Marine Scotland
MS-LOT	Marine Scotland - Licensing and Operations Team
MSA	Marine Safety Agency
MSN	Merchant Shipping Notice
MSS	Marine Scotland Science
MW	Megawatt
NFFO	National Federation of Fisherman's Organisation
NLB	Northern Lighthouse Board
NM	Nautical miles
NSP	Navigational Safety Plan
NTM	Notice to Mariners
OECs	Offshore Export Cables



Term	Definition
OECC	Offshore Export Cable Corridor
O&M	Operation and Maintenance
O&M OEMP	Operation and Maintenance Offshore Environmental Management Plan
OPRC	International Convention on Oil Pollution Preparedness, Response and Co-operation
OREI	Offshore Renewable Energy Installation
OSPAR	Oslo/Paris convention (for the Protection of the Marine Environment of the North-East Atlantic)
PAD	Protocol for Archaeological Discoveries
РСВ	Polychlorinated biphenyl
PPC	Pollution Prevention and Control
PVC	Polyvinyl chloride
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAR	Search and Rescue
SDS	Safety Data Sheet
SEIS	Supplementary Environmental Information Statement
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fisherman's Federation
SNH	Scottish Natural Heritage, acting under its operating name NatureScot" (hereinafter referred to as "NatureScot
SOLAS	Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SPA	Special Protection Area
SPORRAN	Scottish Offshore Renewables Research Framework
SSF	Scottish Sea Farms
SSI	Scottish Statutory Instrument
STOT	Specific Target Organ Toxicity
SWC	Site Waste Calculations
TAS	Transportation Audit Sheet
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office

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Term	Definition
UN	United Nations
VSP	Vessel Safety Plan
VMP	Vessel Marking Plan
VTS	Vessel Traffic Services
WFD	Water Framework Directive
WMP	Waste Management Plan
WTG	Wind Turbine Generator



# **1 INTRODUCTION**

## 1.1 Background

On 26 March 2013, Aberdeen Offshore Wind Farm Limited (AOWFL) received consent from Scottish Ministers under Section 36 (S.36) of the Electricity Act 1989 for the construction and operation of the European Offshore Wind Deployment Centre (EOWDC - also known as the Aberdeen Offshore Wind Farm) and on 15 August 2014 a Marine Licence was attained under section 25 of the Marine (Scotland) Act 2010 (reference 04309/16/0). This Marine Licence was most recently varied in January 2020 (reference 04309/20/0).

Construction and commissioning of EOWDC was completed in 2018 and now is fully operational. The O&M phase is planned from 2018 to 2043.

The Development is located approximately 2 to 4.5 km offshore to the north east of Aberdeen, Scotland, within Aberdeen Bay. The Offshore Export Cables (OECs) are between 3.7 - 4.4 km long (maximum total length ~8 km) and makes landfall at the adjacent coastline in Aberdeen Bay located at Blackdog (Figure 1).

A further overview of the Development is contained in Section 4 of this document.

AOWFL is a company wholly owned by Vattenfall and was established to develop, finance, construct, operate, maintain and decommission the EOWDC.



#### Figure 1 Location of the EOWDC Development Area and the Offshore Export Cable Corridor



Confidentiality: C2 - Internal



# 1.2 Objectives of this Document

The S.36 Consent and Marine Licence contain a variety of conditions that must be discharged through approval by Marine Scotland Licensing Operations Team (MS-LOT) /Licensing Authority. One such requirement is the approval of an Offshore Environmental Management Plan (OEMP) for all phases of the project.

Subsequent to approval of the OEMP it was agreed that the OEMP document is to be updated specifically for O&M phase. The aim of this plan is to set out the environmental management (and monitoring) measures for the EOWDC during the O&M phase only and is now to be referred to as the Operation and Maintenance (O&M) OEMP.

The relevant conditions setting out the requirement for an O&M OEMP that are to be discharged by this document, are presented in full in Table 1.

Consent	Condition	Condition Text	Where Addressed
S.36 Condition Consent 17	Condition 17	No later than three months prior to the Commencement of the Development, an Offshore Environmental Management Plan <sup>2</sup> (OEMP) must be submitted to, and approved by, MS-LOT in consultation with Scottish Natural Heritage, acting under its operating name NatureScot" (hereinafter referred to as "NatureScot) and any other ecological, or such other advisors as required at the discretion of MS-LOT.	This document sets out the OEMP for the O&M Phase for approval by MS-LOT. Consultation to be undertaken by MS-LOT
		The OEMP must detail the measures through all the phases of the wind farm (before, during and after the construction work) to prevent adverse impacts to: marine mammals.	This document details measures for the O&M Phase only following agreement with MS-LOT Sections 6 and 8 of this
		,	O&M OEMP
		birds,	Section 6 of this O&M OEMP
		fish,	Section 6 of this O&M OEMP
		migratory fish including European eels	Section 6 of this O&M OEMP
		habitats,	Section 6 of this O&M OEMP
		coastal processes,	Section 6 of this O&M OEMP
		and other users and uses of the area	Section 10 of this O&M OEMP

#### Table 1.1 - Consent conditions to be discharged by the O&M OEMP

<sup>&</sup>lt;sup>2</sup>'Environmental Management Plan' replaces the S.36 Consent requirement for a 'Project Environmental Monitoring Programme' under Condition 17 as agreed by Marine Scotland in a letter dated 3<sup>rd</sup> March 2017.



Consent	Condition	Condition Text	Where Addressed
Document	and must include species protection plans where appropriate and necessary.		Section 8 of this O&M OEMP outlines the Marine Mammal Protection Plan (MMPP).
		Where appropriate and reasonable, the OEMP must take account of, and implement recommendations from, the Blackdog Firing Range Management Plan, the Research and Monitoring Programme, the Vessel Management Plan and the Navigational Safety Plan and from the Company's Environmental Statement and Supplementary Environmental Information Statement.	Section 6 of this O&M OEMP
	Reason	To ensure that appropriate and effective monitoring of the impacts of the Development is undertaken.	
	Condition 21	The Company must measure, at their own expense, the level of noise emissions from the Development within the first year of the operation of the turbines, and every two years thereafter, or other such period as directed by the Scottish Ministers. The frequency of measurement of the level of noise emissions is subject to review every two years by the Scottish Ministers. The results of any measurement exercise must be provided to the Scottish Ministers as soon as is practicable.	Operational noise monitoring is being undertaken in accordance with condition 21 of the Section 36 consent and is being reported separately to the O&M OEMP process and has been summarised in Section 9
	Reason	To ensure proper environmental control in respect of noise, and to safeguard the amenities of the nearest residential properties	
Marine Licence	3.1.7	The Licensee must ensure that the risk of transferring non-native species to and from the Site is kept to a minimum by ensuring that all appropriate bio-fouling management practices are implemented during the Works.	Section 6.2 of this O&M OEMP

# 1.3 Linkages with other Consent Plans

This O&M OEMP sets out the proposed environmental management measures for the EOWDC and also incorporates matters relating to environmental monitoring. It forms part of a suite of approved documents that will provide the framework for the Development – namely the other Consent Plans required under the S. 36 Consent and Marine Licence.

Indeed, Condition 17 of the S.36 Consent (see Table 1.1 above) requires this O&M OEMP to be, so far as is reasonably practicable, consistent with a number of other consent plans listed in Table 1.2 below (namely in the order listed in the consent condition).

#### Table 1.2 - Consent Plans with linkages to the O&M OEMP

Consent Plan	Condition requirement	
The Design Statement (DS) (EOWDC Document Reference: ABE-ENV-BD-0017)	Condition 14 of the Section 36 consent	



The Blackdog Firing Range Management Plan (BFRMP) (EOWDC Document Reference: ABE- ENV-DB-0013)	Condition 10 of the Section 36 consent
The Research and Monitoring Programme	Condition 15 of the Section 36 consent
The Vessel Management Plan (VMP) (EOWDC Document Reference: ABE-ENV-BD-0006)	Condition 24 of the Section 36 consent
The Navigational Safety Plan (NSP) (EOWDC Document Reference: ABE-ENV-QB-0008)	Condition 26 of the Section 36 consent
O&M Programme (EOWDC Document Reference: ABE-OM-DB-0012)	Condition 3.2.3.5 of the Marine Licence

Those plans provided in Table 1.2 clearly have a link to the O&M OEMP in so far as they provide additional details on matters relating to, management of potential impacts on other marine users (i.e. the VMP, NSP and BFRMP) or relate to environmental monitoring (i.e. the Research and Monitoring Programme).

Consistency between these documents will be achieved by ensuring that all relevant documents are consistent with the terms of any previously submitted or approved documents.

# 1.4 Associated Conditions

Information pertaining to Condition 15 is also provided in this O&M OEMP as requested by Marine Scotland in an email clarification note dated 3<sup>rd</sup> March 2017. The location of the information related to requirements of the Condition within this O&M OEMP is presented in Table 1.3.

Consent Document	Condition Reference	Condition Text	Where Addressed
S.36 Consent	Condition 15	Within six months of the date of the granting of the Section 36 consent, an expert panel must be established by Scottish Ministers to provide scientific advice to them on a research and monitoring programme to inform, where appropriate and as timescales allow, the Project Environmental Management Programme. Membership, funding, the terms of reference and the functions of the panel are to be agreed by Scottish Ministers in consultation with any such advisors at the discretion of MS-LOT.	Expert panel established within six months of S.36 Consent.
		The programme must survey and monitor the impact of the Development on important species, habitats, and users of the sea within Aberdeen Bay all as agreed by the Scientific Panel. The programme must also monitor the habitats around, and the communities that develop on, the submerged structures. The monitoring programme must be subject to input from the expert panel, to consultation with agreed consultees and subject to agreed review periods. The programme must ensure that the	Section 7 of this O&M OEMP

Table 1.3 - Information pertaining to Condition 15



Consent	Condition	Condition Text	Where Addressed
Document	Kerenence	monitoring is robust and covers pre, during and post construction aspects and must be agreed, so far as is possible, prior to the Commencement of Development. The subjects to be included for monitoring, but not exclusively, are:	
		(a) Agreed methods to consider any changes to species, densities and behavioural patterns during all phases of the wind farm;	Section 7 of this O&M OEMP
		(b) Agreed measures to detect bird collisions e.g. blade sensors, targeted radar studies, thermal detection systems etc.	Section 7 of this O&M OEMP
		(c) Gathering field measurements of under water and air borne noise during piling and operation of the turbines at the Development;	The expert research panel agreed which topics were to be included in the programme and it was decided that noise monitoring would not form part of this research programme. However operational airborne noise monitoring of turbines is being undertaken in line with condition 21 of the Section 36 consent and has been summarised in Section 9.
		(d) Operational under water and air borne noise emissions for an initial period of twelve months from the date of the Commencement of the Development and then for such further periods when considered necessary by the expert panel based upon the results received and as agreed by Scottish Ministers in consultation with advisors as identified at their discretion.	Not relevant for O&M Phase
		(e) Deployment of Passive Acoustic Monitoring systems to record vocalisation of marine mammals before, during and after construction of the Development;	Not relevant for O&M Phase <sup>3</sup> .
		(f) The agreement of a Marine Mammal Protection Plan (MMPP);	Section 8 of this O&M OEMP
		(g) Impacts on the adjacent coastline and on other users and uses of the sea; and	Not currently in agreed programme
		(h) Migration and behaviour of European eel, salmon and sea trout due to electro-magnetic fields.	Section 7 of this O&M OEMP
		The research and monitoring programme information and outputs must be reported annually to MS-LOT who may consult with any advisors at their discretion before providing their written approval of said programme information	Section 7 of this O&M OEMP

<sup>&</sup>lt;sup>3</sup> In the event of a material change to the currently proposed O&M activities, as detailed in the approved O&M Programme (ABE-OM-DB-0012), the potential requirement for Passive Acoustic Monitoring (PAM) would be reassessed in consultation with MS-LOT and NatureScot, and in line with the change management procedure outlined in Section 3 of this O&M OEMP.



Consent Document	Condition Reference	Condition Text	Where Addressed
		and outputs. Subject to any legal restrictions regarding the treatment of the information, the results shall be made publicly available by MS- LOT, or by such other party appointed at their discretion.	
		<b>Reason:</b> To ensure that the best available evidence and most appropriate scientific and technical information is used to inform and develop a monitoring programme to allow evaluation of any impacts before, during and after the construction of the Development.	



# 1.5 Structure of this O&M OEMP

In response to the specific requirements of the S.36 Consent conditions, this O&M OEMP has been structured so as to be clear that each part of the specific requirements have been met and that the relevant information to allow MS-LOT to approve the O&M OEMP has been provided. The document structure is set out in Table 1.4.

Table	1.4 -	0&M	OEMP	document	structure

Section		Summary of Content		
1	Introduction	Background to consent requirements and overview of the O&M OEMP scope and structure, and identifies those other Consent Plans relevant to the O&M OEMP and provides a statement of consistency between this O&M OEMP and those plans.		
2	Statements of Compliance	Sets out the AOWFL statements of compliance in relation to the O&M OEMP Consent Condition and the broader operation process.		
3	Updates and amendments to this O&M OEMP	Sets out the procedures for any required updating to or amending of the approved O&M OEMP and subsequent further approval by MS-LOT.		
4	Development Overview	Provides an overview of the Development.		
5	Environmental Management Framework	Describes the environmental management framework for the Development. It provides information on the implementation and communication of the O&M OEMP.		
6	Environmental and Social Management	Sets out the management and mitigation measures relating to environmental and social receptor groups during the O&M Phase		
7	Environmental Research Monitoring Programme	Sets out the proposed environmental research monitoring to be undertaken during the O&M Phase		
8	O&M Marine Mammal Protection Plan (MMPP)	Sets out the proposed environmental research monitoring to be undertaken during the O&M Phase		
9	References	Lists the documents cited within the Plan.		
Appendix Register	A – O&M OEMP Legislation	Details the legislation relevant to the O&M OEMP.		
Appendix	B- Incident Reporting Template	Provides a template for reporting during an incident.		
Appendix Renewab	C– Offshore Wind & Marine es Dropped Objects Form	Provides the MS Offshore Wind & Marine Renewables Dropped Objects Form.		
Appendix	D – Vessel Management Plan	Sets out the how vessel movements are to be managed throughout operational life of the Development		
Appendix E – Navigational Safety Plan		Sets out the how vessel movements are to be managed throughout operational life of the Development		
Appendix F – Blackdog Firing Range Management Plan		Sets out the restrictions to vessel movements and com- munications for vessel movements within the firing range throughout operational life of the Development		
Appendix G – Protocol of Archaeological Discoveries		Sets out the protocol on discovery of archaeological finds		
Appendix H – Marine Pollution Contin- gency Plan		Provides details of the management and response to marine pollution incidents during operation of the windfarm		



Section	Summary of Content
Appendix I - Waste Management Plan	Sets out the waste management framework to be adopted and implemented throughout operational life of the Development
Appendix J – Compliance with ES Roch- dale Envelope Parameters	Demonstrates compliance with the original Application and mitigation set out in the ES and SEIS.



# 2 AOWFL STATEMENTS OF COMPLIANCE

# 2.1 Introduction

The following statements are intended to reaffirm the AOWFL commitment to ensuring that the Development is operated in such a manner as to meet the relevant requirements set out by the Offshore Consents, as well as other broader legislative requirements.

# 2.2 Statements of Compliance

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with this O&M OEMP as approved by MS-LOT (and as updated or amended from time to time following the procedure set out in Section 3 of this O&M OEMP).

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with other relevant Consent Plans, as approved by MS-LOT, and as identified in Section 1.3 above.

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with the limits defined by the original application, the project description defined in the Environmental Statement (ES) and Supplementary Environmental Information Statement (SEIS) and referred to in Annex 1 of the S.36 Consent in so far as they apply to this O&M OEMP (unless otherwise approved in advance by MS-LOT / the Licensing Authority).

AOWFL, in undertaking the operation of the EOWDC, will comply with AOWFL Health, Safety and Security and Environment (HSSE) systems and standards, the relevant HSSE legislation and such other relevant legislation and guidance so as to protect the safety of operational personnel and other third parties.

AOWFL will, in undertaking operation of the EOWDC, ensure compliance with all other relevant legislation and require that all necessary licences and permissions are obtained by the Contractors and Subcontractors through condition of contract and by an appropriate auditing process. A register of legislation relevant to on site environmental management and this O&M OEMP is presented in Appendix A.



# **3 UPDATES AND AMENDMENTS TO THIS O&M OEMP**

Where it is necessary to update this O&M OEMP, in the light of any significant new information related to the environmental management measures, AOWFL proposes to use the change management process set out in Figure 2; identifying such information, communicating such change to MS-LOT, redrafting the O&M OEMP if required, seeking further approval for the necessary amendments or updates and disseminating the approved changes/amendments to responsible parties.



#### Figure 2 O&M OEMP Change Management Procedure

Periodic reviews of the O&M OEMP will be undertaken every 5 years and MS-LOT will be informed of any significant changes to the plan (e.g. changes in roles and responsibilities, updates to management and monitoring measures in line with best practice and the most up



to date legislation and guidance) and provided within the revised document. However, if there are minor or no changes to the document AOWFL will inform MS-LOT that the review has been completed and provide a summary of any minor updates if they have been made.



# 4 DEVELOPMENT OVERVIEW

## 4.1 Introduction

This section provides a brief overview of the EOWDC relevant to this O&M OEMP and Figure 1 shows the location of the EOWDC in Aberdeen Bay.

# 4.2 Development Overview

The Development consists of the following main components:

- 11 Wind Turbine Generators (WTGs);
- Three-legged jacket substructures each installed on suction bucket foundations;
- A network of circa 9.7 km of Inter-array cables; and
- Two buried subsea OECs, totalling up to ~8 km in length, to transmit the electricity from the Wind Turbine Generators (WTGs) to the cable landfall location at Blackdog, within Aberdeen Bay, and connecting to the onshore cables for transmission to the onshore substation and connection to the National Grid network.

Further details of the Development layout and design is set out, in the approved Design Statement (EOWDC Document Reference: ABE-ENV-BD-0017).



# **5 ENVIRONMENTAL MANAGEMENT FRAMEWORK**

## 5.1 Introduction

This section sets out the environmental management framework for the EOWDC, under the following areas:

- Vattenfall environmental policy;
- AOWFL HSSE objectives and management;
- O&M OEMP roles & responsibilities;
- O&M OEMP staff competency and training;
- O&M OEMP communications and reporting;
- Emergency Response Plan;
- Environmental incident reporting;
- Notification of Dropped Objects;
- Auditing of O&M OEMP performance; and
- O&M OEMP document circulation and management.

Note that the environmental management framework links with the approved OEMP developed for the construction phase.

## 5.2 Vattenfall Environmental Policy

AOWFL is a company wholly owned by Vattenfall. Vattenfall is committed to the prevention of injury, ill health and pollution associated with its activities, while reducing its long-term environmental burden. Vattenfall is committed to the continual improvement of HSSE management and performance, and will comply with legal obligations as a minimum. The Vattenfall Environment Policy is outlined below.

We are committed to reduce our environmental footprint. We believe continuous improvement of environmental performance in all parts of our operations is a prerequisite for sound business development. Environmental considerations are part of our daily operations, and our performance builds on the contribution of all our employees.

We provide sustainable energy solutions and services for our customers and business partners to help them reach their environmental ambitions. Through growth in renewable energy, efficient operations, electrification and innovation, we contribute to society becoming fossil free.

#### We commit to become climate neutral

• We will be fossil free within one generation.

• We actively cooperate with our suppliers, customers and partners to reduce emissions in the full value chain. To find new and better solutions we continuously challenge the way we work.



• We believe electrification and innovation are fundamental in building a sustainable society and we contribute to the change.

#### We commit to the protection of nature and biodiversity

• We conduct environmental management in accordance with the precautionary principle and include environmental aspects early in decision-making.

• We strive to avoid and minimize impacts on environment and ecosystems from our operations. Where impacts cannot be fully avoided or mitigated, we consider potential compensation and restoration measures.

• We engage with stakeholders and conduct research and development to build knowledge and reduce impacts.

#### We commit to sustainable use of resources

• We will contribute to the transition to a circular economy.

• We work to optimize use of resources such as energy, fuel, raw materials, waste, by-products, water and land in all operations, and to avoid use of hazardous chemicals.

• We consider resource efficiency already in the design phase, choose Best Available Technologies and continuously work to reduce environmental impacts based on a life-cycle perspective.

Vattenfall's environmental policy is valid throughout the entire Vattenfall Group and provides the basis for the environmental management system. Vattenfall complies with legal and other requirements and fulfils commitments. Environmental considerations are fully integrated in Vattenfall's strategy, decision processes and steering. Vattenfall's CEO, together with Executive Group Management, has the overall accountability for the environmental impact of Vattenfall. The environmental policy is approved by the Board of Directors.

## 5.3 AOWFL HSSE Objectives and Management

The following HSSE objectives have been established for all phases of the EOWDC:

- Zero harm to people;
- Zero harm to the environment
- Zero breaches of permit compliance;
- Zero regulatory formal warnings;
- Zero enforcement notices; and
- Zero prosecutions.

#### 5.3.1 HSSE Management Plan

AOWFL has in place a HSSE Plan for the O&M Phase of the development to ensure a systematic and thorough approach to HSSE management is adopted by everyone involved in the Project. The plan describes how HSSE standards, policies, procedures and practices shall



be applied to ensure that work is carried out safely, sustainably and in line with Vattenfall requirements.

The updated AOWFL HSSE Plan sets out the minimum HSSE standards that must be adhered to by all AOWFL personnel, Contractors and Subcontractors engaged on the project.

AOWFL approaches the management of technical risk by adoption of the As Low As Reasonably Practicable (ALARP) Design Procedure (ADP) which has been developed to apply the principles and process defined within the Vattenfall safety, health and environment risk management standard. This is applied to the lifecycle of the EOWDC.

The application of the ADP to the design of the EOWDC will provide the necessary input to the production of a Safety Case for the development. The Safety Case will provide an effective argument with referenced substantiation that the EOWDC is safe to construct, commission, operate, maintain, and decommission in terms of the management of associated Significant Accident Hazard risks to levels that are ALARP.

The application of this ADP to the design of the EOWDC addresses duties relating to design under The Health and Safety at Work etc. Act 1974.

The overall objective of this procedure is to provide sufficient information and guidance on the process, activities, and documentation required to effectively and demonstrably manage the Significant Accident Hazard risks associated with the design of the EOWDC to a level that is ALARP.

## 5.3.2 Employers HSSE Requirements

AOWFL has developed H&S and Environmental Employer's Requirements (ERs) to ensure a systematic and thorough approach to safety and health management is adopted by each Contractor and Subcontractor involved in the Project. These ERs outline what AOWFL's expectations towards its contractors with regards to ensuring and demonstrating compliance with statutory requirements and good practice.

The H&S and Environmental ERs cover all contracts placed by AOWFL or placed on its behalf; therefore, Contractors are required to communicate these to any appointed Subcontractor. Contractors are expected to describe how high standards, policies and effective procedures are applied to ensure that the work is carried out safely and with minimum detriment to safety, security, health and the environment in documentary form, including but not limited to the following:

- Operation and Maintenance Programme (OMP) (ABE-ENV-BD-0016); and
- Emergency Response Cooperation Plan (ERCoP) (ABE-HSS-QB-0045).

AOWFL will monitor the effectiveness of the Contractors arrangements through worksite safety inspections and management system audits detailed in the HSSE Plan.

## 5.4 O&M OEMP Roles & Responsibilities

This section sets out the roles and responsibilities of all relevant Project personnel during the O&M Phases of the Development, in relation to the delivery of this O&M OEMP.



All Project personnel have a responsibility to comply with the requirements of the O&M OEMP, however the key roles relevant to the delivery and implementation of the O&M OEMP are:

- Site Manager;
- O&M Manager;
- H&S Specialist;
- Environmental Specialist;
- Fisheries Liaison Officer;
- Service Lead;
- Marine Coordinator;
- Contractors and Subcontractors

These roles are further described in the sections below. Figure 3 shows the linkages between the different roles and teams with respect to delivery of the O&M OEMP.



#### Figure 3 O&M OEMP Lines of communication



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## 5.4.1 Site Manager

The Site Manager is responsible for leading the EOWDC O&M team. The Site Manager has the following responsibilities in relation to the O&M OEMP:

- Ensuring that sufficient resources and processes are in place to deliver and comply with the O&M OEMP;
- Ensuring that all personnel and contractors assist and support the Environmental Specialist where required in delivering the O&M OEMP;
- Participating in regular environment and consents meetings;
- Establishing contractual obligations for Contractors and Subcontractors in relation to the O&M OEMP;
- Addressing any non-compliance.

## 5.4.2 O&M Manager

The O&M Manager is responsible for the management of EOWDC assets and daily operations on site. The O&M Manager manages a team of technicians and oversees maintenance work such as component repairs. The O&M Manager has the following responsibilities in relation to the O&M OEMP:

- Ensuring Vattenfall best practice is implemented throughout the O&M phase;
- Ensuring all personnel have site inductions and any further information, instruction, training and supervision needed for the work;
- Ensuring H&S compliance for all O&M activities; and
- Establishing systems to ensure compliance with this O&M OEMP and other relevant Consent Plans.

## 5.4.3 Health and Safety Specialist

The Health and Safety (H&S) Specialist is responsible for providing support, advice and guidance on all aspects of H&S management on the Project. Key responsibilities relevant to the O&M OEMP include the following:

- Coordinating the development, monitoring and implementation of AOWFL H&S management plans, which will be implemented alongside the O&M OEMP;
- Providing H&S support, advice and guidance to the AOWFL Project team;
- Coaching of the Project team to facilitate improvements in HSE performance;
- Participating in regular environment and consents meetings;
- H&S auditing and reporting.

#### 5.4.4 Environmental Specialist

The Environmental Specialist will have day to day responsibility for ensuring ongoing compliance with this O&M OEMP and all other Consent Plans as relevant to the O&M Phase.

Key responsibilities relevant to the O&M OEMP include the following:



- Review and QA of the O&M OEMP;
- Provision of advice to AOWFL on compliance with the O&M OEMP;
- Monitoring of compliance with the O&M OEMP;
- Leading regular environment and consents meetings;
- Liaison with MS-LOT, statutory bodies and stakeholders;
- Managing the process of obtaining new consents where necessary;
- Reviewing contractor documentation (e.g. Method Statements and Risk Assessments) to ensure compliance with the O&M OEMP and associated Consent Plans;
- Maintaining effective communications between AOWFL, Contractors, stakeholders, conservation groups and other users of the sea.

#### 5.4.5 Fisheries Liaison Officer

The Fisheries Liaison Officer (FLO) will work closely with the Environmental Specialist and the O&M team to facilitate coexistence between the EOWDC and commercial fishing interests. Key responsibilities relevant to the O&M OEMP include the following:

- To be the key point of contact for local fisheries stakeholders;
- To identify individual commercial vessels and skippers operating in the offshore area;
- To establish and maintain a strong working relationship with the local fishing industry;
- To have a detailed understanding and awareness of the local fishing industry;
- To understand the potential impact of the EOWDC on fishing activities;
- To communicate clearly and accurately with the fishing industry on behalf of AOWFL
- To ensure information is made available and circulated in a timely manner to minimize interference with fishing activities and other users of the sea; and
- Establish and maintain effective communication between AOWFL, contractors, subcontractors, fishermen and other users of the sea.

#### 5.4.6 Service Lead

The Service Lead is responsible for coordination with the O&M Manager to ensure that maintenance requirements are fulfilled. Key responsibilities relevant to the O&M OEMP include the following:

- Program and performance reports on ongoing campaigns;
- Working closely with the warehouse and logistics coordinators, supporting the logistics of moving spares and equipment;
- Supporting the O&M Manager in creating work packs for specific work scopes;
- Working closely with the O&M team to verify maintenance schedules and method statements for all scheduled maintenance;
- Supporting the H&S and Environmental Specialists to ensure all health, safety and environment requirements are assured when carrying out the planned maintenance campaigns.



#### 5.4.7 Marine Coordinator

The Marine Coordinator is responsible for daily marine coordination at the EOWDC including communication with vessels and tracking of personnel within the site. The Marine Coordinator has the following responsibilities in relation to the O&M OEMP:

- Responsible for external communications relating to navigational safety;
- Engaging in emergency response activities; and
- Ensuring that HSE issues are reported, as required.

#### 5.4.8 Contractors and Subcontractors

All Contractors and Subcontractors shall ensure that their own procedures comply with the requirements of this O&M OEMP and other relevant Consent Plans. Contractors and Subcontractors have the following responsibilities in relation to the O&M OEMP:

- Ensuring that sufficient resources and processes are in place to comply with the O&M OEMP and other relevant Consent Plans;
- Producing and maintaining records of activity on site and communicating those to the H&S Specialist and Environmental Specialist;
- Liaising with the O&M Manager, H&S Specialist and Environmental Specialist.

# 5.5 O&M OEMP – Staff Competence, Training and Awareness

AOWFL is responsible for ensuring that AOWFL personnel and all contractors appointed by AOWFL are competent. All Vattenfall employees must have undertaken a structured HSSE training programme. AOWFL has a documented process in place to manage the selection and ongoing performance of its contractors to ensure that the HSSE risks associated with the contractors' activities are managed effectively.

AOWFL will require that the Contractors have appropriate environmental management procedures in place and the Contractors will be responsible for ensuring that these procedures are adopted by their Subcontractors. AOWFL will evaluate contractor documents in relation to demonstration of HSSE competence and compliance with consents and environmental requirements.

The Environmental Specialist will review relevant contractor documentation (e.g., Method Statements and Risk Assessments; contractor specific EMPs) to ensure compliance with the overarching this O&M OEMP. The Environmental Specialist will advise AOWFL of the outcome of this review.

AOWFL will undertake ongoing audit and inspection of contractor's work to check compliance with HSSE requirements. The Environmental Specialist will monitor audits and inspections to ensure compliance with consent conditions.

Training and awareness specific to this O&M OEMP will be delivered using the following tools:

- Inductions;
- Toolbox Talks; and
- Awareness materials.

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The Environmental Specialist will work with AOWFL to ensure that a dedicated section is included within wider contractor Project inductions to cover environment and consents issues, highlighting the key environmental sensitivities and considerations and including the purposes, requirements and procedures of the relevant Consents Plans. All AOWFL personnel and contractors will receive a Project induction.

Toolbox talks will be designed to convey key points to contractors in a clear and concise manner. For example, a toolbox talk on pollution prevention measures would cover key roles and responsibilities, environmental sensitivities in the vicinity of the Development and procedures to follow in the event of any spill. Toolbox talks will also be scheduled for specific issues.

Training would take place regularly throughout the O&M Phase, in order that Project personnel (including any new personnel) are kept up to date with any changes to requirements or procedures.

Records of training will be maintained. The records will include the content of the training delivered, record of attendance and schedule of review.

In line with the periodic reviews outlined in Section 3, the Environmental Specialist will undertake reviews of current industry best practice and relevant guidance and ensure these are in place at site and provide updated materials for inductions, toolbox talks, awareness materials and training in line with any relevant updates.

### 5.6 O&M OEMP Communications and Reporting

### 5.6.1 Internal Communications and Reporting

AOWFL hold regular **environment and consents meetings** (generally via conference call). These meetings are led by the Environmental Specialist with attendance by the Site Manager and H&S Specialist. The purpose of these meetings is to discuss upcoming O&M activities (i.e. over the next weeks to months) and longer-term future activities (i.e. over the next 6-12 months) and to identify any environment and consents requirements and actions in relation to these activities. In addition, monthly HSE meetings are attended by the O&M team, including subcontractors and contractors, in order to coordinate HSE activities during the O&M phase.

Contractor/Subcontractor **method statements** will be reviewed by the Environmental Specialist for specific activities and the Environmental Specialist will cross-check the proposed activities with the Schedule of O&M Activities provided in the O&M Programme (ABE-OM-DB-0012) to identify if there are any further licensing requirements. In the event that any additional licences are required, the Environmental Specialist will follow the procedure set out in the O&M Programme (ABE-OM-DB-0012). Contractors/Subcontractors will be provided with copies of the relevant consents and licences and made aware of the consent obligations associated with a particular activity.

The Environmental Specialist will maintain a log of licensable marine activities carried out at EOWDC including a record of compliance actions.



### 5.6.2 External Communications and Reporting

AOWFL will carry out external communications, notifications and reporting in relation to O&M activities in compliance with the requirements of the consent and licence conditions. These requirements are set out in Table 5.1 in respect of specific consent conditions and Table 5.2 in relation to commitments set out in the Consent Plans and include: notification of vessels and contractors to MS-LOT, issue of Notices to Mariners, liaison between the Marine Coordinator and the Defence Infrastructure Organisation (DIO)/Ministry of Defence (MOD) in relation to the Black Dog Firing Range, and reporting of spills and dropped objects. These tables will be updated following award of any new Marine Licence to reflect the requirements of the licence conditions.

MS-LOT agreed that these tables are in line with the Marine Licence and the Consent Plans during the meeting on 16<sup>th</sup> January 2019. It was also agreed that a **bi-annual meeting** would be arranged between AOWFL and MS-LOT to ensure regular review of the approach to O&M phase consents compliance management.

In the event that any additional licences or consents are required, the Environmental Specialist will notify MS-LOT. Additional consultation will be held with NatureScot, for example in relation to EPS licensing, and Scottish Environmental Protection Agency (SEPA), in relation to Controlled Activities Regulations (CAR) licensing, as required.



#### Table 5.1: Reporting and notification requirements specified in Consent Conditions

Торіс	Condition	Summary of requirement	Frequency
		The Licensee must provide, as soon as reasonably practicable in advance of their engagement in any Licensed Marine Activity, the name and function of any vessel, agent, contractor or sub- contractor appointed to engage in the Works. The notification must include the master's name, vessel type, vessel IMO number and vessel owner or operating company.	
Vessels, agents,	Marine	Any changes to the supplied details must be notified to the Licensing Authority, in writing, prior to any vessel(s), agent(s), contractor(s) or sub-contractor(s) engaging in the licensed activities. All agents, contractors, sub-contractors, and vessel operators must abide by the conditions set out in this licence.	Prior to the vessel
and sub-	Condition 3.1.2	Only those vessels, agents, contractors or sub-contractors notified to the Licensing Authority are permitted to carry out any part of the Works.	engagement in the works.
contractors		The Licensee must satisfy themselves that any such vessels, agents, contractors or sub-contractors is aware of the extent of the Works for which this licence has been granted, the activity which is licensed and the terms of the conditions attached to this licence.	
		The Licensee must give a copy of this licence, and any subsequent variations that have been made to this licence in accordance with section 30 of the 2010 Act, ensuring it is read and understood, to the masters of any vessels, agents, contractors or sub-contractors engaged in the Works.	
Chemical Usage	Marine Licence Condition 3.1.6	The Licensee must ensure that all chemicals which are to be utilised in the Works have been approved in writing by the Licensing Authority prior to use. All chemicals utilised in the Works must be selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002, unless approved in writing by the Licensing Authority.	Prior to chemical use.
Deposits	Marine Licence Condition 3.2.3.5	The Licensee must provide an Operation and Maintenance Programme to the Licencing Authority within 3 months of the Completion of the Works. Notification must be provided at least 3 months in advance of any subsequent maintenance works where any additional deposits are required. In the event that these works are not assessed in the Application, and are considered by the Licencing Authority as being a material change to the licence, they will require further Marine Licences.	Provide notification at least 3 months in advance of any additional deposits.
HSE Reporting	Section 36 Consent, Condition 5	If any serious health and safety incident occurs on the Site requiring the Company [AOWFL] to report it to the Health and Safety Executive then the Company must also notify MS-LOT of the incident within 24 hours of the incident occurring.	Within 24 hours of an incident occurring.



#### Table 5.2: Reporting and notification requirements specified in Consent Plans

Торіс	Consent Plan	Summary of requirement	Frequency
Notification of Dropped Objects	ation of ed Objects O&M OEMP Plan (Section 5.9) Notification of dropped objects during the O&M Phase will be completed using the MS-LOT 'Offshore Wind & Marine Renewables Dropped Objects Form' This is a recently modified PON2 style process for adoption by the offshore wind farm industry in Scottish waters (Appendix B).		Dropped objects to be reported to Marine Scotland within 6 hours of incident (or within 24 hours if under Force Majeure).
Spills originating from a vessel / WTGMarine Pollution Contingency Plan (Appendix H)The Environmental Specialist will noti for serious incidents (and 72 hours for		The Environmental Specialist will notify MS-LOT of the incident within 24 hours for serious incidents (and 72 hours for less serious incidents).	In event of marine pollution from Vessel or WTG, MS-LOT must be informed within 24 hrs, or 72 hours for less serious incidents.
Reporting during Operation and Maintenance Phase Vessel Management Plan (Appendix D) At present there is no intention to VMP during the operational stage maintenance vessel movements a noted above any change to vessel maintenance of the EOWDC will b (including for example vessels pro- maintenance activities).		At present there is no intention to undertake regular reporting in relation to this VMP during the operational stage although records of operations and maintenance vessel movements and activity will be maintained remotely. As noted above any change to vessel details involved in the operation and maintenance of the EOWDC will be notified to the Licensing Authority (including for example vessels proposed for unplanned or exceptional maintenance activities).	Details of vessels, agents, contractors and subcontractors to be provided as per procedure established during construction phase (for activities outside day to day maintenance).
Local Notice to Mariners (LNtM) Issued upon Commissioning and During Operation	Navigational Safety Plan (Appendix E)	AOWFL will ensure that relevant stakeholders are informed via LNtMs of any planned and unplanned maintenance activities that are outside the day to day maintenance activities associated with the EOWDC.	LNtMs to be issued as per procedure developed during construction phase (for activities outside day to day maintenance).
KIS-ORCA Notifications upon Commissioning and During Operation	Navigational Safety Plan (Appendix E)	AOWFL will ensure notices are issued to the Kingfisher Fortnightly Bulletin detailing any planned or unplanned maintenance activities that are outside the day to day maintenance carried out at the EOWDC.	Kingfisher notices to be issued as per procedure developed during construction phase (for activities outside day to day maintenance).
Liaison between the Marine Coordinator and DIO/MOD	Black Dog Firing Range Manage- ment Plan (Appen- dix F)	Where possible two months' notice (in the form of an indicative schedule) will be given to the DIO prior to any anticipated entry into the Offshore Danger Area (ODA). The purpose of this is to give the DIO an indicative timeframe as to when vessel entry is required so that Firing Range Schedule can be compared. It is unlikely that precise details (i.e. vessel names) will be available at this stage; however any known relevant details will be included. It is noted	Vessels to make contact with Marine Coordinator 1 hour prior to entry.



Торіс	Consent Plan	Summary of requirement	Frequency
		that the need for major maintenance work requiring vessel entry into the ODA may arise unexpectedly. In such a case, notice will be given to the DIO as soon as practicable.	
Liaison between the Marine Coordinator and DIO/MOD	Black Dog Firing Range Manage- ment Plan (Appen- dix F)	<ul> <li>In agreement with and where practicable the DIO will be (through the Marine Coordinator) made aware of indicative timeframes for required vessel entry at least two months in advance.</li> <li>Following on from the indicative time frames, major maintenance vessel entry into the ODA (during O&amp;M Phases of the Development) will require a minimum of one week's notice, which should be given to the Marine Coordinator by the vessel contractor. The information listed below will be provided: <ul> <li>Vessel (s) name and call sign;</li> <li>Vessel (s) Mobile Maritime Service Information (MMSI);</li> <li>Approx. time/date of entry;</li> <li>Approx. time/date of exit;</li> <li>Planned vessel route while within ODA, i.e., anchoring; and</li> <li>Nature of work to be undertaken.</li> </ul> </li> <li>If any changes to submitted entry requirements are required at short notice (e.g., in the event of adverse weather), the vessel contractor must inform the Marine Coordinator as soon as is practicable.</li> </ul>	1 weeks' notice provided (incl. vessel details) to be provided to the DIO/MOD prior to entry into ODA for maintenance activities.
Liaison between the Marine Coordinator and DIO/MOD	Black Dog Firing Range Manage- ment Plan (Appen- dix F)	In addition to that listed above, all vessels must also make contact with the Marine Coordinator directly one hour prior to entry into the ODA, who will provide verbal confirmation that it is safe to enter. Additionally, as good practice, vessels shall check that there are no red flags or red lights displayed on the shore, which may indicate firing is taking place (see Section 5.2), and verbally confirm as such with the Marine Coordinator.	Vessels to make contact with Marine Coordinator 1 hour prior to entry.



### 5.7 Emergency Response Plan

AOWFL has prepared a full ERCoP (UAB-HSE-PR-003) in consultation with the MCA for the EOWDC in addition to an Emergency Response Plan (UAB-HSE-PR-002).

The ERCoP includes the following information:

- Emergency contact and quick reference information;
- EOWDC information including site location, coordinates and site control measures;
- Roles and responsibilities of AOWFL in an emergency;
- AOWFL contact information;
- Emergency response team;
- Liaison arrangements and information exchange;
- Development design parameters relevant to emergency response;
- Search and Rescue (SAR) facilities and SAR response capabilities including cumulative capabilities;
- Medical advice and assistance;
- Firefighting, chemical hazards, trapped persons etc;
- Shore reception arrangements;
- Suspension/ termination of SAR action;
- Criminal action and accidents to persons;
- Media relations;
- Exercises;
- Unexploded ordnance and wreck materials located on or near to an Offshore Renewable Energy Installation (OREI);
- Wreck or wreck materials;
- Counter pollution;
- Search Planning; and,
- Liaison.

The Emergency Response Plan includes the following information:

- Training;
- Roles and responsibilities during an emergency response;
- Contractor role;
- Procedures pertaining to man overboard, injury, fire, marine pollution, collision, unexploded ordnance, bomb threat and hypothermia;
- Information recording; and
- Incident reporting.

#### 5.8 Incident Reporting

In the event that an environmental (e.g. wildlife incident such as injury to marine mammal) or pollution incident occurs, the Contractor or responsible member of staff, as the Incident Observer, will notify the Vessel Master (for spills from a vessel) or AOWFL Marine Coordinator as soon as practically possible within one hour.



The Vessel Master will inform the Marine Coordinator who will then report the incident to the Vattenfall Crisis Incidents and Security (CIS) Team, within 30 minutes, or as soon as it is safe to do so on (+44 203 301 9 301). The Marine Coordinator will also inform the AOWFL Environmental Specialist of the incident and the other responsible AOWFL personnel (Site Manager, H&S Specialist, O&M Manager) who will assist if requested to do so by the Primary Responder.

The Environmental Specialist will notify MS-LOT of the incident within 24 hours for serious incidents (and 72 hours for less serious incidents), providing the environmental incident report when available, and liaising with MS-LOT on any further actions to be taken.

If safe to do so, the Incident Observer will take any reasonable action to contain or reduce the impact of the incident such as using spill kits for minor leaks or spills.

Initial incident reports shall be completed by the Incident Observer and sent by email to the Marine Coordinator (via the Vessel Master if from a vessel) within 48 hours.

In general, incidents will be managed according to a process aligned with the AOWFL incident and emergency response workflow set out in Figure 4 but also according to the Contractors own, compliant response procedures set out in Contractor EMP, incident response and pollution response plans.

Specifically, where an incident occurs the Contractor or responsible person must immediately initiate their own response procedure to control and minimise any adverse environmental effect.

Subsequently, the Environmental Specialist shall work with all relevant Contractors and the AOWFL Site Manager to review and update procedures where necessary to prevent similar incidents from reoccurring.

The Incident Report Format outlined in the AOWFL Offshore Emergency Response Plan (UAB-HSE-PR-002) is provided in Appendix B.

For further information in relation to marine pollution procedures, refer to the Marine Pollution Contingency Plan (MPCP) (UAB-HSE-PR-005) (Appendix H).



Figure 4 Incident reporting workflow





### 5.9 Notification of Dropped Objects

The requirement to record, notify and potentially recover objects lost or accidentally deposited on the seabed during the O&M phase arises from specific requirements in the S.36 and Marine Licences; the relevant consent conditions are set out in Table 5.3 below (the specific elements of the consent conditions addressed by the procedures described in this section are in bold).

Consent Condition	Requirement
Marine Licence 3.1.3	If by any reason of <i>force majeure</i> any substance or object is deposited anywhere in the marine environment, other than at the Site, then the Licensee must notify the Licensing Authority of the full details of the circumstances of the deposit within 48 hours of the incident occurring
	(failing which as soon as reasonably practicable after that period of 48 hours has elapsed). Force majeure may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel, vehicle or marine
	structure determines that it is necessary to deposit the substance or object other than at the specified Site because the safety of human life or, as the case may be, the vessel, vehicle or marine structure is threatened. Under Annex II, Article 7 of the Convention for the Protection of the Marine Environment of the
	North-east Atlantic, the Licensing Authority is obliged to immediately report force majeure incidents to the Convention Commission.

Table 5.3 - Marine Licence conditions relevant to notification of dropped objects

Notification of dropped objects during the O&M phase will be completed using the MS-LOT 'Offshore Wind & Marine Renewables Dropped Objects Form' presented in Appendix C. This is a recently modified PON2 style process for adoption by the offshore wind farm industry in Scottish waters.

PON2 guidance identifies dropped objects as materials lost or discarded at sea, including any materials deposited under conditions of force majeure, but excluding any materials legally deposited in accordance with the requirements of relevant legislation. Although small objects dropped into the sea are unlikely to affect the environment and other sea users, it is not possible to set a threshold under which reporting is unnecessary. Instead, operators are advised to apply some common sense as to the lower level of object that is reportable and to report any lost/dropped object if they are unsure of the hazard it might cause.

The process to be followed in the event of any O&M staff becoming aware that any object has been accidentally (or by need of Force Majeure) dropped or otherwise deposited is set out below in Table 5.4.

A copy of this dropped object procedure and the Dropped Object Form will be available on all O&M vessels; relevant staff will be inducted on the dropped object procedures.

Note that separate provisions apply for the accidental loss of pollutants; these procedures are set out in the MPCP (Appendix H) and must be referred to in place of the following.



#### Table 5.4 - Dropped objects notification and remediation process

#### Introduction

This Dropped Objects Procedure identifies the measures to be put in place to manage dropped objects during the O&M Phase of the EOWDC, including recovery where possible and the recording of losses. This also includes procedures for communicating deposits made under circumstances of Force Majeure.

Dropped objects can present a significant hazard to other sea users and the marine environment. Submission of the Dropped Object Form (Appendix C) enables MS-LOT, in consultation with other relevant stakeholders, to decide what action should be taken and to allow notification of other sea users of any navigational hazards.

#### Prevention

Consideration should be given to minimising wherever possible the potential for objects to be dropped or otherwise accidentally deposited. Each Contractor should have its own process for ensuring equipment and materials are adequately stored and controlled and that staff are adequately trained and briefed on avoiding dropped objects or accidental deposits, and in the event that they do occur on this notification procedure.

#### Identification

If any Contractor or AOWFL becomes aware of any substance or objects that are missing, or an accidental deposit occurs (for example by personnel observing or reporting that an object has been lost) the responsible Contractor will log the loss as soon as becoming aware of the incident on the notification form (providing the required details therein) and as soon as reasonably possible (but as a matter of urgency) notify AOWFL of the incident and provide the completed Dropped Object Form.

Note that every reasonable measure should be taken to immediately retrieve dropped objects where this is considered reasonably practicable (a Marine Licence is not required for such recovery under The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012).

#### Notification

AOWFL will notify MS-LOT by electronically submitting the completed Dropped Object Form within **24 hours** of the incident occurring (or as soon as possible where there is likely to be a significant hazard to other sea users). It is noted that the Marine Licence stipulates a 48 hour reporting timescale. AOWFL will however endeavour to meet the 24 hour timescale as per the standard Dropped Object Form.

The completed Form will, at the same time, be provided to the Scottish Fishermen's Federation, the Maritime & Coastguard Agency, Inshore Fisheries Groups, National Federation of Fisherman's Organisation and Kingfisher at Seafish. Contact details are provided on the Dropped Objects Form in Appendix C.

MS-LOT must also be notified of any activities to recover dropped objects that have been conducted but not been successful (or are considered unlikely to be successful) or that are planned (but may take some time) at the time of notification

#### Recovery

MS-LOT will provide advice to AOWFL on appropriate remedial action in relation to each incident reported.

MS-LOT may deem it necessary to carry out a side scan survey to locate the substances or objects, and may require the deposits to be removed by AOWFL (as set out under Marine Licence Condition 3.2.2.1).

The results of any such surveys must be analysed as soon as reasonably possible and the proposed remedial action and proposals for recovery of the Dropped Object must be provided to MS-LOT

#### **Exemptions from Notification**

The submission of the Dropped Objects Form can be delayed in the event that a vessel makes immediate attempts to retrieve the object and if recovery is successful then notification is not required.



### 5.10 Auditing of the O&M OEMP Performance and Compliance

Compliance with the O&M OEMP and other relevant Consent Plans and the terms of the Project consents will be monitored through a series of audits carried out by responsible and suitably qualified persons and reported to the Environmental Specialist. The Environmental Specialist may additionally undertake their own audits in relation to compliance with this O&M OEMP or other relevant consent plans during the O&M phase.

The AOWFL H&S Specialist and Environmental Specialist will conduct audits of contractor HSSE policies and procedures and ongoing contractor HSSE performance.

Audits conducted may include:

- A scheduled audit following the delivery of O&M OEMP related toolbox talk, to ensure that the requirements and procedures have been understood;
- Site visits and conversations with Project personnel to monitor awareness; and
- Auditing of contractor EMPs/Method Statements.

Specific checklists from the Offshore Consents, relevant Consent Plans and Method Statements will be developed to facilitate the audit process for relevant aspects of the works during the O&M phase of the Project.

Overall consent compliance before, during O&M phase will be monitored by the Environmental Specialist using a Commitments Log and Consents Log.

MS-LOT may also undertake monitoring of compliance with the consents and approved Consent Plans through periodic site inspections. With appropriate notification, AOWFL will facilitate access to all offshore operation activities and documentation for this purpose.

Any observations or corrective actions arising from audits and inspections will be addressed as necessary, with procedures updated in the O&M OEMP as required (see Section 3 above).



# **6 ENVIRONMENTAL AND SOCIAL MANAGEMENT**

### 6.1 Introduction

A summary of the activities that will be undertaken during the O&M phase approved by MS-LOT as part of the O&M programme are presented in Table 6.1 & 6.2. For each activity relevant management sections have been referenced based on the receptor/ subject groups identified which include:

- Marine Fauna;
- Other Users;
- Archaeology;
- Fishing Activities;
- Pollution Events; and
- Waste.

Sections 6.2 to 6.7 provide an overview of the management to be adopted during the O&M Phase for each receptor/ subject group including the following:

- Management objectives;
- Relevant legislation (a summary description of listed legislation is provided in Appendix A);
- Mitigation measures;
- Auditing and Monitoring requirements;
- Reporting requirements;
- Responsibilities; and
- Reference standards and guidelines.

Proposed management have been summarised based on approved consent plans provided in Appendices D to I and mitigation commitments relevant to environmental management provided within the consent application ES (AOWFL 2011) and SEIS (AOWFL 2012). Appendix J sets out where each commitment has been addressed within this O&M OEMP.



#### Table 6.1: Schedule of O&M Activities for WTGs and Foundations

Activity	Description	Method	Frequency or worst-case scenario	Relevant Management Section(s)
Routine inspection and maintenance activities	Inspection (visual or subsea ROV) & maintenance of corrosion protection systems, specified coating systems, and components including Safety Retracting Line (SRL), Jacket lighting, boat landings and Davit crane.	Inspection and maintenance of corrosion protection systems, including coating and cathodic protection, is split between areas above and below water.	Visual inspections of coating protection above water are planned on a yearly basis. Below water, general visual inspections of the substructure components are planned every 5 years; the cathodic protection system is visually inspected and sacrificial anodes tested within the first year of operation, being anode testing planned every 3 years and visual inspection planned every 5 years thereafter. All below water inspections and surveys are performed using ROVs.	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Surveys of Scour Protection for Foundation Structures	After scour protection installation, scour surveys are planned for the second and fifth year of operation and every five years thereafter following recommended inspection and maintenance plan.	ROV survey from support vessel around base of foundations.	After scour protection installation, scour surveys are planned for the second and fifth year of operation and every five years thereafter following recommended inspection and maintenance plan.	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Repair / replace Self Retracting Line (SRL)	Replace SRLs as required on the external foundation.	CTV access. Detach fall arrest system from supporting bracket (bolted connection) on relevant platform. Replace SRL for a functional one and attach to	As required.	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)



		supporting bracket. SRL removed is taken back to shore for repair so it can be used as spare SRL.		
Repairs to lighting / navigation aids	Replace lighting / navigation aids as required on the external foundation.	Access to transition piece platform via CTV. Servicing and replace of navigation aids / lighting as per OEM recommendations.	As per S.36 Consent.	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Service of any of the auxiliary systems in the foundation transition piece	Auxiliary systems are regularly serviced as per manufacturer recommendations. If fault in a system, then repair undertaken.	Repair fault in equipment or system according to manufacturer manuals.	As per manufacturer recommendations. If fault in a system, then repair undertaken.	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Minor repairs to access ladders and boat landings (e.g. replacing bolts).	Repair and replacement of small components associated with the access ladders and boat landings, e.g. bolts. Cutting and welding might be required.	Divers deployed via a diving support vessel, CTVs for transfer of personnel.	As required.	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Davit crane repair	Repair of davit cranes on the WTG foundation.	Repaired in situ. CTV for transfer of personnel.	As required.	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Annual / routine servicing	Routine servicing as per the Service Availability Agreement	Every main component of the WTG is inspected and serviced annually, working to approved written procedures. Consumable items	As per the Service Availability Agreement	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)



		such as filters, brake linings, carbon brushes, grease cartridges are replaced as required. AOWFL has a five year service agreement with MHI Vestas covering the maintenance of the turbines, tower internal platforms, high voltage switchgear, SCADA and instrumentation and the statutory certification of lifting equipment, anchor/rescue points, fall arrest and pressurised systems.		
Gear and hydraulic major oil exchange	Exchange of oil in the WTG hydraulic system and gearbox as part of long term maintenance	Technicians and equipment deployed from CTV or similar vessel. Oil extraction and replacement completed from a suitably equipped vessel for oil storage and transport.	As required.	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Replacement of corrosion protection anodes (external only)	Replace anodes required for corrosion protection of the external foundation.	Divers or ROVs deployed via a dive support vessel, CTV or similar vessel. Mechanical connection or welding as required.	Replacement of a full set of anodes at approx. 5% of WTGs per year (i.e. 1 x WTG per year).	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Paint repairs to boat landing area and general foundation areas	Application of primer and paint system (e.g. Interzone 954 or equivalent) or other coatings to protect the foundations from corrosion (internal/external). Includes	Technicians and equipment deployed from CTV or similar vessel. Surface preparation to break down existing surface coating and any associated rust using grinding or blasting methodology. Primer and	Patching up work at all WTG foundations every 1 or 2 years.	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)



	surface repair and preparation work.	paint repair applied using brush or spray technique.		
Removal of marine growth and/or guano	Removal of marine growth and/or guano from the boat landing, access ladders and wave rider buoy(s). To provide safe access for personnel transferring to the WTG foundation.	High-pressure jet-wash (sea water only) from CTV with wastewater and debris released into receiving environment.	Removal of marine growth on average four times per year per foundation.	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Additional scour protection	No further scour protection is currently scheduled. However, if any of the surveys during the lifetime of the Project identify a major issue with the scour protection, additional scour protection might be required by Construction Support Vessel (CSV).	Additional scour protection will be installed using a fall pipe around the suction bucket with a total thickness of approximately 1.5 m. An ROV will be used for visual checks on the scour protection.	As required.	Marine Fauna (Section 6.2) Other users (Section 6.3) Archaeology (Section 6.4) Fishing Activities (Sec- tion 6.5) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
J Tube and seal repairs	Modify or repair J tubes and seals at point of cable entry during inter-array or export cable repair works.	Divers deployed via a diving support vessel, CTVs for transfer of personnel and small barge or similar vessel for products and equipment.	Up to 8 modifications to J-tubes over the lifetime of the wind farm, based on repair of up to three inter-array cables (see below) and the two export cables which connect to the WTGs.	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Major component replacement	Replacement of major components.	Jack-up vessel or DP platform supply vessel (component depending) for lifting to/from the WTG.	Major component replacement at up to five WTGs per year. On average, a jack-up vessel may be in position at an individual WTG location for 12 days, assuming some weather	Marine Fauna (Section 6.2) Other users (Section 6.3) Archaeology (Section 6.4)



	(WTG blades, gearbox, generator, 66 kV transformer or switchgear).		downtime. Shorter durations may apply in good weather conditions. Generally a jack-up vessel will be in a single position only for a component replacement, and will remain jacked-up until replacement has been completed.	Fishing Activities (Sec- tion 6.5) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Replacement of access ladders / boat landing	Replacement of access ladders and boat landing due to collision damage or corrosion.	Divers or ROVs deployed via a dive support vessel, CTV or similar vessel. Small jack-up or DP platform supply type vessel for replacement for boat landing.	Repairs and replacements at up to 10% WTGs per year (i.e. 1 x WTG per year).	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Painting or other coatings to WTG tower, nacelle or blades	Paint or other coatings applied (internal/external).	Technicians and equipment deployed from CTV or similar vessel. Rope access may be required to reach certain areas of blades or tower.	Coatings on the blades and tower required once per year per WTG. Marine Pollution Contingency Plan measures applied to the Construction Phase will be applied to the O&M phase.	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Blade and hub / spinner repair	Minor repairs to hub /spinner or blade damage (potential stress from turbulence or lightning strike)	Technicians and equipment deployed from CTV or similar vessel. Rope access may be required to reach damaged areas.	Inspection and repair of Leading Edge Protection every three years per WTG.	Marine Fauna (Section 6.2) Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)



#### Table 6.2: Schedule of O&M Activities for Inter-Array and Offshore Export Cables

Activity	Description	Method	Frequency or worst-case scenario	Relevant Management Section(s)
Cable Inspection	No specific maintenance is required. However, assessment of the installed cables will be undertaken to identify any areas at risk of exposure.	Where it is determined that there is a risk of exposure, periodic visual inspections of the circuits by ROVs will be carried out as required. In addition, there will be routine walk downs by AOWFL technicians of the onshore cable to ensure no sections of the cable have become unburied.	No specific maintenance is required. However, assessment of the installed cables will be undertaken to identify any areas at risk of exposure.	Other users (Section 6.3) Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Reburial of inter-array cable	In the event that any section of inter-array or	It is expected that length of cable will be reburied using techniques as per initial installation, or a method with increased probability of success (i.e. more complete, longer lasting burial).	Up to three inter-array cable rebur- ial events over the lifetime of the wind farm. Each reburial event up to 100 m in length. Relevant sections from the Cable Laying Strategy regarding burial will be applied to O&M phase.	Marine Fauna (Section 6.2) Other users (Section 6.3) Archaeology (Section 6.4) Fishing Activities (Sec- tion 6.5)
Reburial of export cable (subtidal)	<ul> <li>export cable becomes exposed following installation, AOWFL will use reasonable endeavours to rebury the cable (where technically feasible) as a preference prior to the use of additional cable</li> <li>protection material (see later activity).</li> </ul>	Cable reburial events will consist of the following activities: Detection of cable exposure; Pre-works survey where required; Cable reburial via mass flow excavator, water jet trencher/jetting ROV, or plough; and Post-burial survey.	Up to five export cable reburial events over the lifetime of the wind farm. Each reburial event up to 800 m in length. Relevant sections from the Cable Laying Strategy regarding burial will be applied to O&M phase.	Pollution Events (Sec- tion 6.6) Waste (Section 6.7)
Reburial of export cable (intertidal)		Cable reburial events will consist of the following activities: Detection of cable exposure; Pre-works survey where required; Cable reburial via mass flow excavator, water jet trencher/jetting ROV, plough or backhoe dredger (if high tide), or	Reburial of 1 x 152 m section of in- tertidal export cable over the life- time of the wind farm (1 x repair/re- burial event in total in the intertidal area).	



Activity	Description	Method	Frequency or worst-case scenario	Relevant Management Section(s)
		excavator (if low tide); Backfill via backhoe dredger/naturally (high tide) or excavator (low tide); and Post- burial survey.	Relevant sections from the Cable Laying Strategy regarding burial will be applied to O&M phase.	
Repair of inter-array cable	Recovery and repair of a cable section using cable joints; or Replacement of a complete new length of cable (WTG to WTG).	Physically disconnect cables from electrical system and cable protection systems (if required). De- burial of damaged cable section. Recovery of damaged cable section to a cable repair vessel / barge. Complete cable repair joint (if required). Surface lay full new length of cable or repaired cable within existing cable corridor. The new length of cable or repaired cable will be re-laid as close as practicably possible to the previous position of the cable. Where it is not possible to relay the cable in exactly the same position, the cable will be re-laid within 10m of the previous position of the cable, Complete cable reburial using a jetting /trenching ROV unit. Replace cable protection system and physically reconnect cables to electrical system (if required). Specialist cable repair vessel would be required; or a cable lay vessel for full length cable replacement. Dive vessel may be required if a full length cable replacement (WTG to WTG) was required	Up to three inter-array cable repair events over the lifetime of the wind farm. Each repair event up to 1,160 m in length. Relevant sections from the Cable Laying Strategy regarding burial will be applied to O&M phase.	Marine Fauna (Section 6.2) Other users (Section 6.3) Archaeology (Section 6.4) Fishing Activities (Section 6.5) Pollution Events (Section 6.6) Waste (Section 6.7 An assessment of the potential impacts of cable repairs on surrounding habitats will be prepared to support any required marine licence process.



Activity	Description	Method	Frequency or worst-case scenario	Relevant Management Section(s)
Repair of export cable (subtidal)	Repair and replacement of export cable section (subtidal).	Cable repair will consist of the following activities: Pre-works survey where required; Removal of any existing scour/cable protection via divers or mechanical means; Pull cable out of seabed by the cable laying vessel or de-bury via jetting/air-lifting tool OR leave cable in place if possible; Repair via two joints: one inline joint (first) and then one omega joint (second); Lay repaired cable section and joints on the seabed; Burial via mass flow excavator, water jet trencher/jetting ROV, or plough; Replacement of scour/cable protection where necessary; Post-works survey. The repaired cable or new length of cable will be re-laid in the previous position of the cable or as close as practicable. The maximum width of seabed disturbance is anticipated to be 10m.	As required	Marine Fauna (Section 6.2) Other users (Section 6.3) Archaeology (Section 6.4) Fishing Activities (Section 6.5) Pollution Events (Section 6.6) Waste (Section 6.7 An assessment of the potential impacts of cable repairs on surrounding habitats will be prepared to support any required marine licence process.
Repair of export cable (intertidal)	Repair and replacement of export cable section (intertidal).	Cable repair will consist of the following activities: Pre-works survey where required; Pull cable out of seabed by the cable laying vessel or de-bury via excavator/jetting/air-lifting tool OR leave cable in place if possible; Repair via two joints: one inline joint (first) and then one omega joint (second); Lay repaired cable section and joints on the seabed; Burial via mass flow excavator, water jet trencher/jetting ROV, plough or	As required	Marine Fauna (Section 6.2) Other users (Section 6.3) Archaeology (Section 6.4) Fishing Activities (Section 6.5) Pollution Events (Section 6.6) Waste (Section 6.7



Activity	Description	Method	Frequency or worst-case scenario	Relevant Management Section(s)
		backhoe dredger (if high tide), or excavator (if low tide); Backfill via backhoe dredger/naturally (high tide) or excavator (low tide); and Post- works survey. The repaired cable or new length of cable will be re-laid in the previous position of the cable or as close as practicable. The maximum width of seabed disturbance is anticipated to be 10m.		An assessment of the potential impacts of cable repairs on surrounding habitats will be prepared to support any required marine licence process.
Installation of small scale seabed cable protection	In the event that the cables cannot be reburied, to a depth sufficient to provide adequate protection, cable protection may be required along those sections subject to exposure.	Repair options would likely consist of placement of rock bags or cable protection matting/mattressing over exposed area via utility vessel and support barge.	Installation of protection along up to 800 m in length of export cable, following up to five repair events over the lifetime of the wind farm. Installation of protection along up to 100 m on inter array cable following up to three inter-array cable reburial events over the lifetime of the wind farm. Relevant sections from the Cable Laying Strategy regarding burial will be applied to O&M phase.	Marine Fauna (Section 6.2) Other users (Section 6.3) Archaeology (Section 6.4) Fishing Activities (Section 6.5) Pollution Events (Section 6.6) Waste (Section 6.7



### 6.2 Marine Fauna

The proposed management of marine fauna during the O&M phase is provided below in Table 6.3.

#### Table 6.3: Overview of management to be implemented during the O&M Phase relating to marine fauna.

Management Area	Description
Performance Objective	To avoid disturbance and ensure no direct contact with marine mammal and bird species during O&M maintenance phase
Relevant Legislation	International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004 The Merchant Shipping (Anti- Fouling Systems) Regulations 2009 Wildlife and Natural Environment (Scotland) Act 2011 Wildlife and Countryside Act 1981 (as amended) Convention for the Protection of the Marine Environment of the North-East Atlan- tic (The OSPAR Convention) The Marine Strategy Framework Directive
Management Ac	ctions
General	Implementation of Vessel Management Plan (Appendix D) Copies of the VMP are to be held in the following locations: - At AOWFL Head Office; - At the premises of any agent, Contractor or Subcontractor (as appropriate) act- ing on behalf of AOWFL; - All site offices dealing with marine operations; - At the AOWFL Marine Coordination Centre; and - On all vessels
Marine Mam- mals and Birds	Implementation of a Marine Mammal Protection Plan (MMPP) (Section 8) Vessel movements associated with the O&M phase will be minimised where practicable. Sensitive periods for bird species, specifically during late summer and early au- tumn when post breeding dispersal of auks and other key species occurs and when birds may be flightless due to moulting, will be highlighted during toolbox talks to ensure additional care is taken to minimise disturbance, particularly within intertidal areas during these periods. The Scottish Marine Wildlife Watching Code will be referred to during staff train- ing toolbox talks for good practice on vessel activity and mitigation of potential disturbance to marine mammals and birds. The code includes measures for ves- sel operators such as: - Avoiding sudden unpredictable changes in speed, direction and engine noise; and - Ensuring engines and propellers well maintained to minimise noise. Use of regular vessel transit routes which will follow, where possible established shipping routes. When using ducted propellers adopt the following measures -Consideration of existing shipping lanes in passage planning; -Avoiding sudden changes in speed or direction in transit to and from the site as far as possible and unless required for health and safety reasons or other emergency purposes; -Keeping a good look forward (this particularly applies to the smaller vessels); -Not intentionally pursuing marine mammals or birds; and -Not instinating contact with marine mammals or birds; and



Management	Description
Area	
Area Invasive Non- native Species	All vessels of 400 gross tonnage (gt) and above to be in possession of a current international Anti-fouling System certificate; All vessels of 24 m or more in length (but less than 400gt) to carry a declaration on Anti-fouling System signed by the owner or authorised agent accompanied by appropriate documentation; Details of all ship hull inspections and biofouling management measures be docu- mented by the Contractors and, where applicable, recorded in the Planned Maintenance System; Vessels to be compliant (where applicable) with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Con- vention, developed and adopted by the International Maritime Organisation (IMO, a2017)) (i.e., ships 400 gt and above designed/constructed to carry ballast water and operating in the waters of more than one Member State), specifically: An approved Ballast Water and Sediments Management Plan and records of such management in a Ballast Water Record Book in accordance with the provi- sions of the Convention. Ballast water management meets the ballast water performance standards as de- tailed in the BWM Convention. Ballast Water Exchange to take place at least 50 nm from the nearest land and in 200 m water depth. Video footage from ROV inspections of foundations and other seabed infrastruc- ture will be reviewed for the presence of MNIS. Any INNS identified will be re-
	ported to MS-LOT & NatureScot and further advice sought on the appropriate ac-
	tion to be taken (e.g. removal)
Auditing	None specified
Responsibility	Environmental Specialist to undertake toolbox talks and highlight guidance to contractors with respect to mitigation - to reduce disturbance to marine mammals and birds O&M Manager to ensure mitigation relating to INNS is implemented by contrac- tors Contractors to implement proposed mitigation
Reporting	No reporting specified - any change to vessel details involved in the operation and maintenance of the EOWDC will be notified to the Licensing Authority (in- cluding for example vessels proposed for unplanned or exceptional maintenance activities).
Relevant Ref- erences Standards	Resolution Mepc.207(62) 2011 Guidelines For The Control And Management Of Ships Biofouling To Minimize The Transfer Of Invasive Aquatic Species Scottish Marine Wildlife Watching Code

### 6.3 Other Users

The proposed management of other users during the O&M phase is provided below in Table 6.4

Table 6.4: Overview of management to be implemented	during the O&M Phase relating to other
users.	

Management Area	Description
Performance Objective	To ensure no safety incidents occur to navigation or effects to activities of third parties as a result of O&M activities
Legislation	United Nations Conventions on the Law of the Sea Safety of Life at Sea (SOLAS) Convention, as implemented through the Merchant Shipping (Safety of Navigation) Regulations 2002 Merchant Shipping Act (1995); The Merchant Shipping (ISM Code) Regulations 2014



Management	
Area	Description
	International Convention on Standards of Training, Certification and Watchkeep-
	Seafarers, 1995, implemented through the Merchant S tion) Regulations 1997 (as
	International Convention for the Prevention of Pollution from (1973/1978 as
	amended); International Maritime Organisation (COLREGS 1972). International Regulations for Preventing Collisions and Sea, as amended, 1972
	The Electricity (Offshore Generating Stations) (Safety Zones) (Application Proce- dures and Control of Access) Regulations 2007
Management Ac	ctions
General	Implementation Navigational Safety Plan and Blackdog Firing Range Manage- ment Plan (Appendix E and Appendix F) Copies of the VMP are to be held in the following locations:
	<ul> <li>At AOWFL Head Office;</li> <li>At the premises of any agent, Contractor or Subcontractor (as appropriate) act-</li> </ul>
	ing on behalf of AOWFL; - All site offices dealing with marine operations;
	- At the AOWFL Marine Coordination Centre; and
Vessels and	Regular communication between EOWDC Marine Coordination Centre and Aber-
ments	All CTV skippers to complete local knowledge training with Aberdeen Harbour VTS.
	Vessel movements will be managed with Aberdeen VTS including promulgation of information to third parties.
	All vessels required to comply with legislation appropriate for their class and area
	Onboard health and safety requirements for all vessels will be required to meet the prescribed standards established by the EOWDC Safety management Sys-
	All vessels will be installed with AIS receivers and transmitters where major maintenance or repair works are required
	Restricted in the Ability to Manoeuvre vessels will transmit safety warnings on VHF to inform other vessels of their actions using the Security message.
	A notice to maintenance will be employed during the cable maintenance period A notice to mariners will be issued in advance of any activity conducted within EOWDC. AOWFL will issue a NTM to a list of local and national stakeholder as
	per the NSP. AOWFL will provide as built positions and maximum heights of all WTGs and any subsea infrastructure to the UKHO for aviation and nautical charting purposes.
	AOWFL will ensure notices are issued to the Kingfisher Fortnightly Bulletin detail- ing any planned or unplanned maintenance activities that are outside the day to day maintenance carried out at the EOWDC.
	Entry into the Blackdog Firing Range will be from vessels requiring entry for major maintenance purposes only, it will be never be used for transit or anchoring pur-
	poses alone (i.e., entry into the Blackdog Firing Range will be avoided wherever possible).
	Entry into Blackdog Firing Range during O&M phase as part of planned activities or as a result of an emergency will be via approval process specified in the Black- dog Firing Range Management Plan.
Lighting and	
Marking	All WTG's designated as a Significant Peripheral Structure (SPS) will be marked with a navigational light, with range dependent on proximity to shore.
	of poor visibility. AIS will be fitted on WTGs AWF04 and AWF09.



Management	
Area	Description
	Aviation Lighting will be fitted as required by the CAA and all WTGs shall be lit with a synchronised flashing red morse code letter 'W'. All jacket foundations will be painted traffic yellow (RAL 1023) up to the height of
	28.46M above HAT.
	Any part of the structure below LAT is not required to be painted
	Each WTG will display a unique identification panel with black letter on a yellow background visible in all directions.
	All vessels will be marked and lit as per the COLREGs 1972 and in accordance with UK Standard marking Schedule for Offshore Installations.
Safety Zones	The requirement for a safety zone will be continually reviewed and where neces- sary an optional '50m' around certain structures may be applied during O&M Phase.
	For major maintenance activities that require a heavy lift vessel of jack-up vessel or during unplanned repair works a safety zone of 500m will apply.
Anchoring	All vessels will consider standard marine practice as per the NSP during anchor-
	permission will be sort from MCC to anchor.
	Anchoring is prohibited or restricted in the Blackdog Firing Range, areas within
	Aberdeen VTS limits and disused explosives dumping ground.
Monitoring	Monitoring of infringements of safety zones.
	monitoring conducted annually.
	Monitoring of subsea cables via a distributed Temperature sensing system to de-
	tect faults that may arise.
Auditing	Independent vessel audits will be undertaken as necessary.
Responsibility	Marine Coordinator (MCC) - Vessel movements, anchoring, lighting and marking Vessel skippers - Vessel movements, anchoring
Reporting	CTV sailing times will be communicated with Aberdeen Harbour using agreed
	Safety zone infringements will be reported to Marine Scotland.
	Indicative maintenance schedule will be given to the DIO prior to any anticipated
	entry into the Offshore Danger Area (ODA)
Relevant	The Air Navigation Order 2016, Statutory instruments 2016 No. 765.
Standards	Lighthouse Authorities (IALA 2013), O-139 - The marking of Man-made Offshore
etanuarue	Structures, December 2013.
	CAP 437 (Dec 2016) Standards for Offshore Helicopter Landing Areas
	CAP 393 (Aug 2016) Air Navigation: The Order and the Regulations
	Martime and Coast Guard Agency (MCA) (2016), Marine Guidance Note (MGN)
	tional practice, safety and emergency response.
	International Association of Lighthouse Authorities (IALA) 0-139 - The Marking of
	Man-Made Offshore Structures (IALA 2013);
	Ministry of Defence Obstruction Lighting Guidance, November 2014

## 6.4 Archaeology

The proposed management of archaeology during the O&M phase is provided below in Table 6.5

Table 6.5: Overview of management to be implemented during the O&M Phase relating to archaeology.



Management	Description
Area	Description
Performance Objective	Avoid impacts on marine archaeology (including the development of Archaeological Exclusion Zones (AEZs)).
	Protection of Wrecks Act 1973,
	Protection of Military Remains Act 1986,
	Ancient Monuments and Areas Act 1979, Merchant Chinaing Act 1005
	Merchant Shipping Act 1995
	Heritage 1992, the Valetta Convention)
Legislation	UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001
Management A	ctions
•	
General	Implementation of the Protocol of Archaeological Discoveries (PAD) (Appendix
	G)
	Avoidance, where practicable, is the preferred mitigation strategy for known cul-
	tural neritage assets.
	must be reported through the Protocol of Archaeological Discoveries (PAD)
	All contractors are required to observe in full any established AEZs by ensuring
	that no works, anchoring or other seabed impacts occur within such exclusion
	zones
	All contractors are required to be familiar with the requirements of the PAD and
	observe in full the established reporting protocol in the event of any archaeologi-
<u>۸ ۲ 7 -</u>	cal.
AEZS	All Contractors and AOWFL personnel should be aware of the locations of the
	AEZ and other archaeological receptors.
	AEZS must be respected during all site activities including work and vessel moor-
	All AFZ positions must be clearly established. The extent of each AFZ should be
	determined by the known nature of the site from available geophysical, video or
	diver survey data. The shape of the AEZ should be appropriate for the site or
	anomaly it is designed to protect.
	The position of all AEZs must be clearly communicated to all Contractors, who
	must be aware of the importance of the AEZs.
Auditing	Not applicable
	Environmental Specialist - Ensure all contractors are aware of AEZ locations and
Bosponsibil	other archaeological receptors.
itv	and report on archaeological discoveries or potential disturbance
,	Any material that is identified as potential archaeology will be reported using the
	PAD.
	Should a breach of an AEZ take place then the Contractor should inform AOWFL
	as soon as the event has taken place. The AOWFL Environmental Specialist
	must then inform the Consenting Authority of the incident and seek archaeologi-
	cal advice from the archaeological consultant.
	out in the method statement relating to the work
	Each archaeological report will satisfy the method statement for the investigation
	and will present the project information in sufficient detail to allow interpretation
	without recourse to the project archive.
	Archaeological reports will be prepared in accordance with the guidance given in
Demonst	the relevant IfA's Standards and Guidance documents.
Reporting	Each archaeological report will be submitted in draft to AOWFL
	The Code of Practice for Seabed Developers (The Joint Neutrice) Archaeology
Relevant	Policy Committee 2008).
References	Historic Environment Guidance for the Offshore Renewable Energy Sector (Wes-
Standards	sex Archaeology 2007).



Management	
Area	Description
	Offshore Geotechnical Investigations and Historic Environment Analysis: Guid- ance for the Renewable Energy Sector (Gribble and Leather 2010). Model Clauses for Archaeological Schemes of Investigation (Wessex Archaeol- ogy 2010). Protocol for Archaeological Discoveries (Crown Estate 2010).

### 6.5 Fishing Activities

The proposed management of fishing activities during the O&M phase is provided below in Table 6.6.

# Table 6.6: Overview of management to be implemented during the O&M Phase relating to fishing activities.

Management Area	Description
Management Objective	To facilitate coexistence between the EOWDC and Aberdeenshire and Aber- deen City commercial fishing interests during the O&M phases of the EOWDC
Legislation	Not Applicable
Management Actions	AOWFL have appointed a fisheries liaison officer (FLO) to communicate activi- ties with identified fishery groups The FLO and / or Marine Coordinators will update individual fishermen via emails, letters or Notice to Mariners (NTMs) / Marine Safety Notices (MSNs) covering offshore O&M activities (outside of day to day routine maintenance ac- tivities). The FLO will contact fishermen directly to ensure updates are given to the rele- vant stakeholders, particularly when assessing the gear location or removal with regard to the EOWDC activities A Code of Good Practice for contracted vessels will be established to minimise negative interaction and aid coexistence. An emergency response plan and procedures will be executed in the event of an emergency. Arrangements will be agreed with affected commercial fishing interests for fish- ing gear lost as a result of the works undertaken in respect of the EOWDC based on procedures already in place for the oil and gas industry.
Monitoring	Not Applicable
Auditing	Not Applicable
Responsibility	Environmental Specialist / Site team - To provide information to the FLO and lo- cal fisheries stakeholders to assist with the coexistence with the EOWDC. FLO - point of contact for local fisheries stakeholders, identify individual com- mercial vessels and skippers operating in the offshore area; establish and maintain a strong working relationship with the local fishing industry through clear and accurate communication
Reporting	NTM's issued as required. Meeting minutes with fisheries stakeholders, Information and notices relating to O&M activities.
Relevant References Standards	FLOWW Best Practice Guidance for Offshore Renewable Developments: Rec- ommendations for Fisheries Liaison 2014

### 6.6 Accidental Pollution Events

The proposed management of pollution events during the O&M phase is provided below in Table 6.7.



Table 6.7: Overview of management to be implemented during the O&M Phase relating to accidental pollution events.

Management	Description
Area	Description
Objective	To ensure the potential for spill events to occur and ensure that if a spill does the spill does not impact on the environment
Legislation	Offshore Chemicals (Amendment) Regulations 2011, extending Offshore Chemi- cal Regulations 2002 (as amended) Control of Substances Hazardous to Health Regulations 2002 COSHH
	The REACH Enforcement Regulations 2008 (as amended) Merchant Shipping Act 1995 The Merchant Shipping (Prevention of Oil Bollution) Regulations 1006 (as
	amended)
	and other harmful substances (1983) The Merchant Shipping (Ship-To-Ship Transfers) Regulations 2010 (as
	amended) The Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998 (OPRC Regulations) (as amended) The Merchant Shipping (International Safety Management (ISM) Code) Regula-
	The Merchant Shipping (Dangerous or Noxious Liquid Substances in Bulk) Reg- ulations Amendments 2004
	Merchant Shipping (Reporting Requirements for Ships Carrying Dangerous or Polluting Goods) Regulations 1995/2498 (as amended, 2204/SI 2110 and 2005/SI1092)
	Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations
	Merchant Shipping (Prevention of Pollution: Substances Other than Oil) (Intervention) Order 1997/1869
Management Ad	tions
General	Implementation and ensure all activities are undertaken in accordance with the Marine Pollution Contingency Plan (Appendix H)
Hydrocarbon Equipment re-	Vessel refuelling to be undertaken in accordance with Merchant Shipping Notice (MSN) 1829 "Ship to Ship Transfer Regulations 2010/2012".
fuelling	Bunkering operations shall be visually monitored both within the machinery space and also on deck at the hose connection point.
	Persons responsible for refuelling shall not have any other duties allocated dur- ing this period of time.
	At least two appropriate communication methods shall be available and an emergency stop or emergency stop alarm to shore or other vessel shall be available.
	Vessels are to be fitted with save-alls and / or oil recirculation / overflow sys- teams. Vessels under 400 GT may not necessarily be fitted with such facilities and should have suitable oil spill equipment to hand.
	Personnel shall be trained in spill prevention awareness and in the use of spill kits
	spection and maintenance of equipment. The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc., spe-
	cial oil gutter ways etc. will be regularly inspected and drained or cleaned. Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.
Hydrocarbon Vessel Colli-	All vessels will comply with the measures set out in the Navigational Safety Plan (NSP) Appendix E (ABE-ENV-QB-0008) (including compliance with all interna-
sion	tional maritime rules) to minimise the risk of vessel to vessel collision and vessel to structure allision.



Management	
Area	Description
Hydrocarbon	All vessels will comply with the measures set out in the Navigational Safety Plan
Vessel	(NSP) Appendix E (including compliance with all international maritime rules) to
Grounding	minimise the risk of vessel stranding / grounding
Hydrocarbon	All equipment shall be operated and maintained in good order and in accord-
Plant or equip-	ance with legal requirements.
ment failure	All plant and equipment shall only be operated by adequately trained and com-
	petent personnel.
	All portable/ temporary onshore storage tanks and/or areas shall be burded to at loast 110% of the total oil storage inventory volume.
	The means of preventing any fuel oil from escaping into the bildes such as trave
	beneath oil numps beaters atc. special oil outter ways atc. will be regularly in-
	spected and drained or cleaned
	Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to en-
	sure that leaks are detected at an early stage and rectified.
Hvdrocarbon	Preparation and review of task-specific risk assessments and method state-
Spillage during	ments. Personnel shall be trained in spill prevention awareness and in the use of
use of Equip-	spill kits (See Section 11.4). Spill kits shall be readily available for mopping up
ment	any minor spills. The means of preventing any fuel oil from escaping into the
	bilges such as trays beneath oil pumps, heaters etc., special oil gutter ways etc.
	will be regularly inspected and drained or cleaned. Oil pressure pipes and fuel oil
	pipes and fittings will be inspected regularly to ensure that leaks are detected at
	an early stage and rectified.
Non hydrocar-	All vessels will comply with the measures set out in the Navigational Safety Plan
bon Spill,	(NSP) (ABE-ENV-QB-0008) (including compliance with all international maritime
	rules) to minimise the risk of vessel to vessel collision, vessel to structure allision
	and vessel stranding / grounding.
Lubricating and	All equipment shall be operated and maintained in good order and in accord-
Hydraulic	ance with legal requirements. WIG sensors will enable early detection of loss of
	in the unlikely event of a leak. Gear oil seals shall be routinely checked during
0103	planned maintenance programmes
Lubricating and	Preparation and review of task-specific risk assessments and method state-
Hvdraulic Oil	ments. Personnel shall be trained in spill prevention awareness and in the use of
Spillage during	spill kits (See Section 11.4). Spill kits shall be readily available for mopping up
use of equip-	any minor spills. Fittings will be inspected regularly to ensure that leaks are de-
ment	tected at an early stage and rectified.
Lubricating and	All equipment shall be operated and maintained in good order and in accord-
Hydraulic Oil	ance with legal requirements. All plant and equipment shall only be operated by
Failure of plant	adequately trained and competent personnel. All portable/ temporary storage
or equipment	tanks and/or areas shall be bunded to at least 110 % of the total oil storage in-
	ventory volume.
Chemicals	All equipment shall be operated and maintained in good order and in accord-
Leakage within	ance with legal requirements. WIG sensors will enable early detection of loss of
WIG	fluid and leaks. There is a bunded area within the nacelle to collect liquid in the
	unlikely event of a leak. Equipment including noses, pipes and seals shall be
	routinely checked during planned maintenance programmes. Chemicals will,
	shore Chemical Regulations 2002 (as amended). The WTC tower transformer
	has its own hund to collect liquids in the unlikely event of a leak
Chemical Spill-	Preparation and review of task-specific risk assessments and method state-
age during use	ments. Personnel shall be trained in the correct handling and use of chemicals
	(See Section 11.4). Personnel shall be trained in spill prevention awareness.
	and in the use of spill kits. Spill kits shall be readily available for mopping up any
	minor spills. All hazardous substances shall have a safety data sheet (SDS)
	which is intended to provide procedures for handling or working with that sub-
	stance in a safe manner. The handling and use of chemicals and hazardous
	substances shall be in compliance with the information on the SDS. COSHH as-
	sessments should be conducted for Development specific hazardous



Management	
Area	Description
	substances. Segregated storage facilities will be used to control the separation of hazardous substances. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).
Spill Response	Implementation of MPCP Appendix H
Monitoring	No planned monitoring proposed unless pollution incident requires monitoring as part of the response which will involve vessel or aerial surveillance
Auditing	Not Applicable
Responsibility	Marine Coordinator - main AOWFL point of contact in the event of emergency and pollution incidents Environmental Specialist - be responsible for ensuring the incident response complies with the Offshore Consents and Consent Plans where possible. O&M Site Manager - is available to provide assistance to the Marine Coordinator and Vessel Master wherever necessary and is responsible for initiating the in- vestigation, closure and lessons learned process post incident Contractor - Responsible for activating the SOPEP and responsible for the ves- sel
Reporting	Communications as per MCMP Issue of Marine Pollution Report (POLREP) following a spill
Relevant References Standards	Marine Management Organisation (MMO) (2016) Approved oil spill treatment products Marine Safety Agency (MSA) (1996) MSN No. M.1663, Vessels Engaged in Oil Recovery. (It should be noted that this MSN expired but was not superseded so this will be followed as best practise).

### 6.7 Waste

The proposed management of waste during the O&M phase is provided below in Table 6.8.

Table 6.8: Overview of management to be implemented during the O&M Phase relating to waste.

Management	
Area	Description
	To minimise, reuse, recycle, and dispose of waste streams generated offshore
Performance	during the O&M phases of the Development, in compliance with relevant waste
Objective	legislation.
	Environmental Protection Act 1990
	Environmental Protection Act 1990 (Amendment) (Scotland) Regulations 2001
	Environment Act 1995
	Controlled Waste (Scotland) Regulations 1992 (as amended)
	Special Waste (Scotland) Regulations 1996 (as amended)
	Landfill Directive (1999/31/EC)
	Waste (Scotland) Regulations 2012
	The Waste (Meaning of Hazardous Waste and European Waste Catalogue)
	(Miscellaneous Amendments) (Scotland) Regulations 2015
	Waste Management Licensing (Scotland) Regulations 2011
	The Environmental Protection (Duty of Care) (Scotland) Regulations 2014
	The Waste (Recyclable Quality) (Scotland) Regulations 2015
	Merchant Shipping (Prevention of Pollution by Sewage and Garbage from
	Ships) Regulations 2008
	The Merchant Shipping (Anti-Fouling Systems) Regulations 2009
	Food & Environmental Protection Act (FEPA) 1985 (with amendments) Depos-
	its in the Sea (Exemptions) Order 1985
	Control of Substances Hazardous to Health Regulations 1994 COSHH
Legislation	The REACH Enforcement Regulations 2008



Management		
Area	Description	
Management Actions		
General	Implementation of the development Waste Management Plan (Appendix I) All AOWFL Contractors and vessels will be required to prepare for AOWFL in- formation and implement their own Waste Management Plans (WMPs) and Vessel Garbage Management Plans (where applicable) in line with standard practice. Any debris or waste materials placed below MHWS during the operation of the development are removed from the Site, as soon as is reasonably practicable, for disposal at a location above MHWS approved by SEPA	
Storage	All skips and other similar containers used for storing and transportation of waste shall be adequately protected so as to ensure that the waste does not escape into the environment. All waste skips shall be suitable for offshore use with some form of containment (e.g. lids, nets) to prevent waste material blowing overboard and subsequent pollution to sea. Designated wheelie bins will be filled with absorbent pads and will be provided as spill kits on the installation vessels. Oily waste bins and temporary bunding (for isolating problematic areas or prior to commencing repairs for example on hydraulic equipment) will be provided. Once used, contaminated spill kit materials will be stored in hazardous waste bags, or disposed of into the designated hazardous waste skip, and trans- ported to shore for disposal.	
Processing	Food waste from vessels will be ground or comminuted to the required size in accordance with the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008 prior to disposal at sea. Some vessels will have sewage treatment facilities, which will treat the sewage prior to discharging to the sea in accordance with MARPOL (73/78) Annex IV. Where treatment facilities are not available, sewage will be brought onshore for treatment. All reasonably practicable measures shall be taken to minimise the amount of waste produced in general and of hazardous waste in particular. Opportunities to reduce packaging or implement take-back schemes for pack- aging and unused materials will be discussed with the suppliers. Where possi- ble, hazardous materials will be substituted for less hazardous alternatives. Waste minimisation measures will be set out in waste management plans and implemented by the Contractors and Subcontractors during operation in order to achieve the waste allowance targets. These measures may include: • Ordering and using only enough materials required to complete the task; • Handling and storing materials to as to maximise product life; and • Ensuring that materials that can be reused are handled to prevent damage.	



Management			
Area	rea Description		
	Wastes generated during the O&M Phase will be segregated into waste types to facilitate off-site recycling (for example, metals, wood, and plastic). Sufficient space will be allocated for storage of separate containers of key waste materi- als. These containers will be clearly labelled and staff will be given training on waste segregation Waste materials arising from the operation of the Development will only be transported by registered waste carriers and special waste carriers currently published on SEPA's online public registers		
	special waste Consignment Note as appropriate), which correctly describes the waste using the European Waste Catalogue code, identifies the waste carrier and details where the waste will be transported.		
	Requirements for transferring waste and registered waste carriers will be un- dertaken in accordance with regulation 3, 4, 5 and 6 of The Environmental Pro- tection (Duty of Care) (Scotland) Regulations 2014.		
	Any unidentified wastes must be treated as hazardous and stored separately from other wastes pending identification and classification.		
	Hazardous waste will be identified in accordance with Draft Waste Classifica- tion (2015)		
	The Contractors will consider the use of recycled materials where possible, subject to AOWFL approval, cost and availability.		
	All waste that cannot be reused, recycled or recovered will be collected by the licensed waste management contractor and disposed of at a permitted site suitable for the type of waste.		
	Waste generated from offshore activities will be brought onshore for recycling or disposal. Ground food waste will be disposed of at sea in accordance with the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008.		
Monitoring	All contractors will be required to produce estimates of waste streams during their operations		
Auditing	Vessel audits as required will be undertaken to ensure compliance before a vessel is allowed to enter the Development Area		
	Environmental Specialist - ensuring waste management measures are imple- mented, review contractor EMPs Contractors - Develop own WMP, undertake works in accordance with the		
Responsibility	WMP		
Reporting	Reporting of waste estimates		
Delever	Duty of Care Code of Practice 2012;		
Relevant	SEPA guidance on the production of Site Waste Management Plans 2010		
References Standards	Toro Wasto Sectland 2010		
Stanuarus			



# 7 ENVIRONMENTAL RESEARCH AND MONITORING PROGRAMME

In accordance Condition 15 of the S.36 Consent a research monitoring programme is required as part of the development with objective to gain a better understanding of impacts from Offshore Wind Farms on marine environment. To support the programme part funding was acquired under the European Economic Plan for Recovery in the Field of Energy. In addition, an EOWDC Scientific Research and Monitoring Panel, comprising of a number of specialist personnel was set-up to provide scientific expertise and advice to support AOWFL Research Monitoring Programme.

Table 7.1. summarises the research and monitoring programmes approved to be undertaken during the O&M phase. Details of current progress and results can be found here: https://group.vattenfall.com/uk/what-we-do/our-projects/european-offshore-wind-deployment-centre.

Research Program	Summary
Auk and Guillemot Tagging Study	The study aims to provide detailed data on the non-breeding season movements of adult guillemots and razorbills, with particular reference to UK populations likely to interact at some stage of the year with offshore wind farms in the North Sea. The study aims to collect movement data for identified bird species over a period of several years using geolocator tags. Geolocator tags record light intensity (and normally also sea surface temperature) on a time base memory chip, allowing daylength and time of sunrise and sunset to be estimated. These data allow the location of the bird to be determined twice per day.
Salmon and Sea Trout Smolt Tracking Study	The study aims to provide detailed data on the seasonal movement of salmon and sea trout smolts, with particular reference to UK populations likely to interact at some stage of the year with the EOWDC. Migration routes of salmon and sea trout ("salmonids") from the Rivers Dee, Don and Ythan will be investigated over three years (2018-2020) through tagging and tracking of migrating juvenile salmonid smolts. The data derived from the tracked individuals will be combined with local sea current information, to estimate actual swimming vectors of smolts. The use of the hydrodynamic Scottish Shelf Model (SSM), developed by Marine Scotland Science, will therefore provide a view of smolt dispersion around NE Scotland. It should be noted that this study is currently on hold (October 2020) due to the Covid-19 Pandemic. Dates for ongoing work will be confirmed by AOWFL and provided to MS-LOT as soon as they are known.
Socio-economic Study	The aims of this study are to explore methods used to predict socio-economic impacts of OWFs, compare predicted impacts with actual impacts of OWFs, enhance understanding of OWF socio-economic impacts and highlight best practice in how to maximise local benefits. The study will achieve these aims by undertaking review of socio-economic impacts literature, monitor the European Offshore Wind Deployment Centre (EOWDC) (Aberdeen OWF) over the project lifecycle, review the socio-economic content in recent OWF Environmental Statements (ES) for the UK and other EU states and compare EOWDC socio-economic impacts of OWFs: Beatrice, Hornsea and floating OWFs

Table 7 1	- FOWDC Scientific	Research and	Monitorina	Projects
		Nescaren ana	monitoring	110,000



Research Program	Summary
Bird Avoidance Study	This study will monitor the flight patterns and responses of gannet, kittiwake and large gulls flying during the summer breeding season through and close to the pioneering European Offshore Deployment Centre. Flights will be tracked by installing a high-performance radar system, communicating digitally with long-range pan tilt cameras installed at the base of the turbine, which will collect three-dimensional radar tracks as well as video footage of birds moving through the wind farm. This technology will ensure that specific species, flight height as well as their individual and group behaviour can be identified, throughout the wind farm during its operation.



# 8 **O&M PHASE MARINE MAMMAL PROTECTION PLAN**

A Marine Mammal Protection Plan (MMPP) was required under Condition 15f of the S.36 Consent.

This O&M MMPP has been prepared to ensure potential threats associated with the O&M activities at the EOWDC are appropriately managed, coordinated and controlled to avoid unnecessary disturbance and potential harm to marine mammals.

The potential operational phase threats identified in the ES included vessel operations. Prior to the operational phase it was also noted that the use of Ultra Short Baseline (USBL) equipment, required for positioning and tracking of equipment underwater, may pose risks to marine mammals. This equipment is widely used in the marine environment in a variety of scenarios, however an EPS Risk Assessment was carried out, and, based upon the precautionary principle, and it was concluded an EPS licence could be granted (licence reference: MS EPS 17/2019/0).

### 8.1 Introduction

The ES and SEIS (Marine Mammals Baseline Addendum, Genesis 2012) utilised information from research surveys carried out along the north east Grampian coastline and the wider North Sea area, as well as several years of land based and boat surveys covering the wider Aberdeen Bay area, in order to describe the marine mammal environmental baseline. Aberdeen Bay is an important area for marine mammals, with up to 18 species having been recorded from sighting or stranding records in Aberdeen Bay and the surrounding area; including 12 odontocete species, three mysticete species and three pinniped species. Of these, bottlenose dolphins, harbour porpoises, white-beaked dolphins, minke whales, Risso's dolphins, harbour seals and grey seals occur regularly in the Aberdeen Bay area, with other species only being recorded occasionally or rarely.

The review of the distribution of each marine mammal species indicates that although several marine mammals have the potential to be in the area, for the majority of these species the Aberdeen Bay area is only a marginal part of their habitat. Most species, with the exception of bottlenose dolphins, have a wide range and regularly occur throughout the northern and central North Sea, both along the coast and in offshore areas.

The more commonly sighted species in the Aberdeen Bay area are the harbour porpoise, bottlenose dolphin and grey and common seal.

**Harbour porpoise** are the most common species of cetacean in the North Sea and have a wide range and distribution in both coastal and offshore areas. They have been found to regularly occur in the Aberdeen area throughout the year, with peak occurrence during August and September.

**Bottlenose dolphins** in the Aberdeen area are part of the resident population from the Moray Firth Special Area of Conservation (SAC), which have a range extending from the Moray Firth to the Firth of Forth. They have been observed off Aberdeen throughout the year, although there appears to be an increase in observations between November and May. During the



EOWDC surveys, it was noted that the area near the entrance to Aberdeen Harbour was commonly occupied by bottlenose dolphins, which may be linked to salmon migration up the nearby River Dee. From the available information it is apparent that the Aberdeen area is important for bottlenose dolphins, however, it is unclear how reliant they are on the area, near the entrance to Aberdeen Harbour, in relation to other areas along the North-east coast of Scotland.

With respect to **grey and harbour seals**, both species are frequently sighted throughout the year in Aberdeen Bay, especially at the entrances to the rivers Dee and the Don. Harbour seals increase in numbers at the estuaries of the Rivers Dee and Don in the winter and early spring. They use haul-out sites at the Donmouth, at the mouth of the Ythan estuary and at Catterline. Grey seals use haul-out sites at the Donmouth, at the mouth of the Ythan River, outside Peterhead harbour, Cruden Bay, Boddom and at Catterline. The most well established grey seal colony in the area is at Catterline, where up to five pups may be born each year. Designated coastal SACs for harbour seals are present along the east coast of mainland Scotland, these are situated in the Dornoch Firth and Morrich Moore in the Moray Firth and Firth of Tay and Eden estuary. 18 Designated SAC's for grey seals along the east coast of Scotland include the Isle of May at the entrance of the Firth of Forth, and it can be expected that individual seals from these colonies may be passing through the Aberdeen Bay area.

### 8.2 Vessel Operations

The requirement to manage vessel operations to take account of potential disturbance to marine mammals is set out through the requirement in the S.36 consent to draft, for approval, a Vessel Management Plan (VMP).

The approved VMP (Appendix D) is intended to ensure that the vessel operations are managed in such a way that disturbance effects on marine mammal species are managed and where required, mitigated.

The approved VMP must be referred to in planning and conducting all marine vessel operations to ensure that the approved mitigation and management procedures are applied.

The VMP sets out requirements related to:

- Defining the number, types and specification of vessels to be used during the operation of the Project;
- Defining how vessel management will be coordinated during operation; and
- Defining the location of working port(s), and how often vessels will be required to transit between port(s) and the site and indicative vessel transit corridors that will be used.

All Contractors and Vessel Operators will be required to comply in full with the approved VMP and to communicate with and follow the instructions from the appointed Marine Coordinator or other responsible person.

### 8.1 Geophysical Survey and USBL Operations

Prior to the commencement of O&M activities, an EPS risk assessment was carried out in relation to proposed use of USBL locator beacons and geophysical survey equipment (side


scan sonar (SSS) and multibeam echo sounder (MBES)) at regular intervals during the O&M phase.

In relation to SSS and MBES usage, the EPS risk assessment concluded the following:

"The (high frequency) sounds produced during MBES surveys fall outside the hearing frequencies of cetaceans (and therefore will not cause disturbance). Furthermore, in shallow (< 200 m) water, these high frequency sounds are likely to attenuate more quickly than the lower frequencies used in deeper waters (JNCC,  $2017^4$ ). This is also assumed to be the case for the high frequency sounds produced by the SSSs [currently proposed]. As per the EPS Risk Assessment: Construction Phase Works, no mitigation is therefore deemed to be required for operation of such equipment (as per the JNCC guidelines)...".

In relation to USBL usage, the EPS risk assessment concluded the following:

"There is no potential for lethal effects, physical injury or auditory injury to marine EPS; and

While there is potential for temporary disturbance of individual EPS animals, this potential for disturbance is considered to be negligible within the context of the wider populations of EPS."

NatureScot advised however that mitigation, in the form of pre-work searches (conducted by a suitably trained member of the vessel crew), was required prior to the use of all referenced equipment, as stated in the subsequently granted O&M EPS licence (MS EPS 17/2019/0).

The Environmental Specialist will therefore ensure that all O&M activities which require the use of USBL (and SSS / MBES) are assessed against the EPS Risk Assessment and NatureScot advice. Should the equipment parameters (i.e. source levels and frequency range) fall within the range previously assessed, the Contractors and Vessel Operators will be required to comply in full with the O&M EPS licence (MS EPS 17/2019/0) and to report all sightings in line with the licence.

It should be noted that the requirement for an EPS licence (and mitigation) was driven, in part, by a highly precautionary principle, due to a lack of research into equipment such as USBL and potential for effects on marine mammals. AOWFL / Vattenfall have therefore commissioned a study designed to further inform the conclusions of the EPS risk assessment. It is expected that an updated application or variation request will be submitted prior to the expiry date of the current EPS licence, which accounts for the findings of the study (in prep).

<sup>&</sup>lt;sup>4</sup> JNCC. (2017). JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys which can be downloaded from http://jncc.defra.gov.uk/marine/seismic\_survey.



## 9 OPERATIONAL ENVIRONMENTAL MONITORING

Condition 21 of the European Offshore Wind Deployment Centre section 36 consent states:

"The Company must measure, at their own expense, the level of noise emissions from the Development within the first year of the operation of the turbines, and every two years thereafter, or other such period as directed by the Scottish Ministers. The frequency of measurement of the level of noise emissions is subject to review every two years by the Scottish Ministers. The results of any measurement exercise must be provided to the Scottish Ministers as soon as is practicable.

To address this condition the operational noise monitoring programme commenced with collection of noise measurements of the wind farm in the first year of operations with the aim to demonstrate that onshore background noise levels are not exceeded by the noise generated by the offshore wind turbines.

Operational noise monitoring was conducted at the following onshore locations:

- Corse Drive, Bridge of Don;
- Chapelwell Wynd, Balmedie; and
- The EOWDC substation at Blackdog.

At each location a sound level meter, calibrator and rain gauge are deployed. Measurements are taken in dB and plotted against wind speed in order to understand the levels of background noise and whether the noise generated by the offshore turbines exceeds the background noise present at these locations.

An interim report was submitted to MS-LOT in November 2019, the outcomes of which were impacted by high levels of background noise. The report recommended further monitoring is undertaken during periods of easterlies (typically occurring in spring/autumn) and proposed the use of a proxy location to eliminate the influence of the OWF from the background noise (Arcus, 2019). As a result the monitoring did not deliver the required data and additional monitoring has been agreed with Marine Scotland, Aberdeenshire Council and Aberdeen City Council. Monitoring is scheduled for October 2020 at the following locations, as proposed in the interim report:

- Cruden Bay Golf Club; and
- The EOWDC substation at Blackdog.

Currently the condition requires a report to be submitted every two years. The November 2019 interim report was accepted as the first submission with the next report due to be submitted to Marine Scotland by the end of 2021.



## **10 REFERENCES**

AOWFL (2011) European Offshore Wind Deployment Centre Environmental Statement

AOWFL (2012) European Offshore Wind Deployment Centre Environmental Statement Addendum (SEIS).

Arcus Consultancy Services (2019) European Offshore Wind Deployment Centre Operational Noise Monitoring Interim Report, November 2019

Chartered Institute for Archaeologists (20145). Code of Conduct.

Gribble, J. and Leather, S. (2011). Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector. Commissioned by COWRIE Ltd.

Joint Nautical Archaeology Policy Committee (JNAPC) (2008). JNAPC Code of Practice for Seabed Development.

Marine Scotland (2013) Section 36 Consent Granted by MS-LOT to Construct and Operate the European Offshore Wind Deployment Centre (EOWDC) Electricity Generating Station, Aberdeen Bay, Approximately 2 km East of Blackdog, Aberdeenshire.

Marine Scotland (2016) Marine Licence for Marine Renewables Construction Works and Deposits of Substances or Objects in the Scottish Marine Area. Reference 04309/16/1.

The Crown Estate (2014). Protocol for Archaeological Discoveries: Offshore Renewables Projects. Published by Wessex Archaeology, Salisbury, on behalf of The Crown Estate.

Wessex Archaeology (2007). Historic Environment Guidance for the Offshore Renewable Energy Sector. Prepared by Wessex Archaeology for COWRIE, January 2007.

Wessex Archaeology (2010). Model Clauses for Archaeological Written Schemes of Investigation: Offshore Renewables Projects. Prepared by Wessex Archaeology for The Crown Estate.



## **APPENDIX A - O&M OEMP LEGISLATION REGISTER**



## **APPENDIX B - INCIDENT REPORTING TEMPLATE**



## APPENDIX C- OFFSHORE WIND & MARINE RENEWABLES DROPPED OBJECTS FORM



## APPENDIX D – VESSEL MANAGEMENT PLAN



## **APPENDIX E – NAVIGATIONAL SAFETY PLAN**



# APPENDIX F – BLACKDOG FIRING RANGE MANAGEMENT PLAN



# APPENDIX G - PROTOCOL OF ARCHAEOLOGICAL DISCOVERIES (PAD)



## **APPENDIX H – MARINE POLLUTION CONTINGENCY PLAN**



## **APPENDIX I- WASTE MANAGEMENT PLAN**



## **APPENDIX J - COMPLIANCE WITH ES MITIGATION MEASURES**



# European Offshore Wind Deployment Centre

# O&M Phase Marine Pollution Contingency Plan

Submitted for approval pursuant to Section 36 Condition 13 (f) and Marine Licence Condition 3.1.11

# UAB-HSE-PR-005

August 2017

Prepared by:	Esther Villoria	Environment Manager	t and Consents	30/08/2017
	NAME	ROLE		DATE
Reviewed by:	Jim Green	HSSE Mana	ger	30/08/2017
	NAME	ROLE		DATE
STATUS	DATE	REVISION	NAME	SIGNATURE



Revision	Date	Revision changes	
0	06/04/2017	First issue	
1	05/06/2017	Post consultation and Removal of Landfall Location 2	
2	07/07/2017	Further consultation	
3	30/08/2017	Reference to Section 12.1.3 added to Section 7.3	
4	30/03/2020	Updated for O&M phase, document reference number changed	
5	20/04/2020	References added to Liquid Remediact <sup>™</sup> and finalisation for consultation	
6	07/08/2020	Addressing stakeholder comments on updated revision for O&M phase	
7	21/09/2020	Addressing further comments from Maritime & Coastguard Agency	



#### **O&M Marine Pollution Contingency Plan Overview**

#### Purpose and objectives of the Plan

A Marine Pollution Contingency Plan (MPCP) was prepared to address the specific requirements of the relevant conditions attached to the Section 36 consent and the Marine Licence issued to Aberdeen Offshore Wind Farm Limited (AOWFL).

The overall aim of this revised MPCP is to make provisions in respect of spill and collision incidents occurring during the operation and maintenance (O&M) phase of the Development.

This 'O&M MPCP' confirms that the spill and collision related mitigation measures detailed in the Application will be applied during operation where these remain relevant.

All relevant method statements developed by Contractors and Subcontractors involved in the European Offshore Wind Deployment Centre (EOWDC) will comply with the procedures set out in this O&M MPCP.

#### Scope of the Plan

This O&M MPCP covers the following:

- A risk assessment of the potential sources and likelihood of a pollution incident;
- Oil and chemical spill response procedures and actions;
- Background and supporting information to support the response procedures, including response strategy guidelines; and
- Confirmation that the spill and collision provisions described within this MPCP align with those considered in the Environmental Statement (ES), Supplementary Environmental Information Statement (SEIS), Marine Licence, S.36 Consent and Marine Licence Application.

#### Plan Audience

This MPCP is intended to be referred to by relevant personnel involved in the construction and operation of the EOWDC, including AOWFL personnel, Contractors and Subcontractors. Compliance with this MPCP will be monitored by AOWFL and reported to the Marine Scotland Licensing and Operations Team.

#### Plan Locations

Copies of this O&M MPCP are to be held in the following locations:

- At AOWFL Head Office;

- At the premises of any agent, Contractor or Subcontractor (as appropriate) acting on behalf of AOWFL;

- At the AOWFL Marine Coordination Centre; and
- With the Environmental Specialist



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## LIST OF ABBREVIATIONS AND DEFINITIONS

## Defined Terms

Term	Definition / Description
Term         Application         Cables         Cable Laying Strategy (CLS)	Definition / DescriptionThe Application and Environmental Statement submitted to the Scottish Ministers, by the Company on 1st August 2011 and Supplementary Environmental Information Statement submitted to the Scottish Ministers by the Company on 6th August 2012 for consent under section 36 of the Electricity Act 1989 and for a Marine Licence under 20(1) of the Marine (Scotland) Act 2010, for the construction and operation of the European Offshore Wind Deployment Centre (EOWDC) electricity generating station approximately 2 km off the coast of Aberdeenshire in Aberdeen Bay with a generation capacity of up to 100 MW.Offshore Export Cables and Inter-array cables.The Strategy to be submitted for approval under Condition 25 of the section 36 Consent.
Company	Aberdeen Offshore Wind Farm Limited (AOWFL). AOWFL is wholly owned by Vattenfall and has been established to develop, finance, construct, operate, maintain and decommission the European Offshore Wind Deployment Centre.
Construction	As defined by the Section 36 Consent, (as per section 64(1) of the Electricity Act 1989, read with section 104 of the Energy Act 2004), construction is defined as follows:
	<ul> <li>"construct", in relation to an installation or an electric line or in relation to a generating station so far as it is to comprise renewable energy installations, includes:</li> <li>placing it in or upon the bed of any waters;</li> <li>attaching it to the bed of any waters;</li> <li>assembling it;</li> <li>assembling it;</li> </ul>
	<ul> <li>installing it.</li> </ul>
Construction Method Statement (CMS)	The Statement to be submitted for approval under Condition 13 of the section 36 Consent.
Contractor	Any Contractor/Supplier (individual or firm) working on the project, hired by AOWFL.
Development	The European Offshore Wind Deployment Centre electricity generating station in Aberdeen Bay, approximately 2 km east of Blackdog, Aberdeenshire, as described in Annex 1 of the section 36 Consent.
Development Area	The area which includes the wind turbine generators, the Inter- array cables and part of the Offshore Export Cable Corridor, including any other works, as shown in Part 4 of the Marine Licence (named as Lease Boundary in the Marine Licence).
Environmental	The Statement submitted by the Company on 1 August 2011 as
Statement (ES)	part of the Application.
Incident Site	I ne immediate vicinity of the location of the spill.
Marina Licanas	Liconco issued by the Secttish Ministers under Port 4 of the
	Marine (Scotland) Act 2010 for construction works and deposits



	of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Export Cable Corridor.	
Offshore Consents	Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC; Declarations granted under section 36A of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places within the territorial sea where structures forming part of the Offshore Wind Farm are to be located; and Marine Licence under Part 4 of the Marine (Scotland) Act 2010 for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Export Cable Corridor	
Offshore Export Cables (OECs)	The offshore export cables (and all associated cable protections) connecting the WTGs to the onshore export cables.	
Offshore Export Cable Corridor Landfall	The location where the offshore export cables come ashore.	
Oil Spill Response Contractor	The firm contracted to respond to spills.	
Primary Responder	The person(s) who will assume primacy in the event of a marine pollution incident and manage initial response (Vessel Master or Marine Coordinator).	
Section 36 Consent	Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC.	
Subcontractor	Any Contractor/Supplier (individual or firm) providing services to the project, hired by the Contractors (not AOWFL).	
Supplementary Environmental Information Statement (SEIS)	The Addendum submitted to the Scottish Ministers by the Company on 6 <sup>th</sup> August 2012 as part of the Application.	
Vessel Management Plan (VMP)	The Plan to be submitted for approval under Condition 24 of the Section 36 Consent.	



## Acronym Definitions

Term	Definition
ACA	Action Co-ordinating Authority
AOWFL	Aberdeen Offshore Wind Farm Limited
BEIS	Department for Business, Energy & Industrial Strategy
BAOAC	Bonn Agreement Oil Appearance Code
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction Environmental Management Plan
CGOC	Coastguard Operations Centre
CIS	Crisis Incidents and Security
CMS	Construction Method Statement
COSHH	Control of Substances Hazardous to Health
CPS	Counter Pollution and Salvage
CPSO	Counter Pollution and Salvage Officer
EC	European Commission
EEZ	Exclusive Economic Zone
EOWDC	European Offshore Wind Deployment Centre
ERCoP	Emergency Response Cooperation Plan
ES	Environmental Statement
GHS	Globally Harmonised System
hr	Hour
HSE	Health and Safety Executive
HSSE	Health, Safety, Security and Environment
IFO	Intermediate Fuel Oil
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
ISM	International Safety Management
ITOPF	International Tanker Owners Pollution Federation
JNCC	Joint Nature Conservation Committee
km	Kilometre



Term	Definition
МСА	Maritime and Coastguard Agency
MCC	Marine Coordination Centre
MGN	Marine Guidance Note
MGO	Marine Gas Oil
ml	Millilitres
ММО	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
MRC	Marine Response Centre
MS-LOT	Marine Scotland - Licensing and Operations Team
MS-ML	Marine Scotland - Marine Laboratory
MSA	Marine Safety Agency
MSN	Merchant Shipping Notice
MW	Megawatt
NCP	National Contingency Plan
NHS	National Health Service
NM	Nautical Mile
NSP	Navigational Safety Plan
O&M	Operation and Maintenance
ОСМ	Offshore COSHH Method
OCNS	Offshore Chemical Notification Scheme
OEC	Offshore Export Cable
OEMP	Offshore Environmental Management Plan
OPEP	Oil Pollution Emergency Plans
OPRC	Oil Pollution Preparedness, Response and Co-operation
OREI	Offshore Renewable Energy Installation
OSCP	Oil Spill Contingency Plans
POLREP	Marine Pollution Report
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RSPB	Royal Society for the Protection of Birds



Term	Definition
S.36	Section 36 Consent
SCG	Strategic Coordinating Group
SCU	Salvage Control Unit
SDS	Safety Data Sheet
SEG	Standing Environment Group
SEIS	Supplementary Environmental Information Statement
SEPA	Scottish Environment Protection Agency
SOLAS	Convention for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SOSREP	Secretary of State's Representative
STAC	Scientific and Technical Advisory Cell
STOp	Scientific, Technical and Operational Advice Note
TCG	Tactical Coordinating Group
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
UN	United Nations
UTC	Coordinated Universal Time
UV	Ultraviolet
VHF	Very High Frequency
VMP	Vessel Management Plan
VOC	Volatile Organic Compound
WTG	Wind Turbine Generator



## **1 INTRODUCTION**

## 1.1 Background

On 26 March 2013, Aberdeen Offshore Wind Farm Limited (AOWFL) received consent from the Scottish Ministers under Section 36 (S.36) of the Electricity Act 1989 for the construction and operation of the European Offshore Wind Deployment Centre (EOWDC - also known as the Aberdeen Offshore Wind Farm) and on 15 August 2014 a Marine Licence was attained under section 25 of the Marine (Scotland) Act 2010 (reference 04309).

The Development, which consists of 11 wind turbine generators (WTGs), is located approximately 2 to 4.5 km offshore to the north east of Aberdeen, Scotland, within Aberdeen Bay. The Offshore Export Cables (OECs) are each be between 3.7 - 4.4 km long (maximum total length ~8 km) and reach landfall at the adjacent coastline in Aberdeen Bay (at Blackdog) (Figure 1). The EOWDC was fully commissioned in July 2018.

AOWFL is a company wholly owned by Vattenfall and was established to develop, finance, construct, operate, maintain, and decommission the EOWDC.



Figure 1 Location of the Development Area and the Offshore Export Cable Corridor.

### 1.2 Objectives of this Document

The S.36 Consent and Marine Licence contain a variety of conditions that were required to be discharged through approval by the Scottish Ministers/Licensing Aum ,,thority prior to the commencement of any offshore construction works. These requirements included the approval of a Marine Pollution Contingency Plan (MPCP). The aim of this plan was to make provisions



in respect of spills or collisions during the construction and operation phases of the Development.

As per the review process (Section 3), a periodic review of project documentation identified areas where the MPCP required updating to ensure it was applicable to the operation and maintenance (O&M) phase. Those updates are made within this 'O&M MPCP' document, which is submitted to the Licensing Authority (Marine Scotland) for approval. The relevant conditions that are to be discharged by this O&M MPCP document (in full or partially) are presented in full in **Error! Reference source not found.** 

Condition Text	Applicability to O&M MPCP	Where Addressed
Marine Licence Condition 3.1.11		
The Licensee must, no later than three months prior to the Commencement of the Works, submit in writing to the Licensing Authority for their written approval, a Marine Pollution Contingency Plan ('MPCP').	Not applicable	n/a – Addressed in MPCP submitted prior to construction
The MPCP must make provision in respect of spills and collision incidents occurring during the construction and operation of the Works and where such spills or collisions occur then the MPCP must be adhered to in full.	Applicable	Section 2.2
The MPCP must take into account existing plans for all operations, including offshore installations, that may have an influence on the MPCP.	Applicable	Section 7
Practices used to refuel vessels at sea must conform to industry standards and to relevant legislation.	Applicable	Section 0
The MPCP must set out how any oil leaks within the turbine nacelle are to be remedied and that such relevant repairs are required to be undertaken without undue delay.	Applicable	Section 9
Commencement of the Works must not occur until the Licensing Authority has given its written approval to the MPCP.	Not applicable	n/a – Addressed in MPCP submitted prior to construction
Section 36, Condition 13 (f)		
Prior to the Commencement of Development a Construction Method Statement ("CMS") must be submitted by the Company to the Scottish Ministers and approved, in writing by the Scottish Ministers, following consultation with Scottish Natural Heritage, Scottish Environment Protection Agency, the Marine and Coastguard Agency, the Planning Authorities, Northern Lighthouse Board, and any such other advisors as may be required at the discretion of the Scottish Ministers. Unless otherwise agreed in writing by the Scottish Ministers, construction of the Development must proceed in accordance with the approved CMS. The CMS must include, but not be limited to, information on the following matters:	Not applicable The MPCP submitted prior to construction was approved by Licensing Authority. The remaining requirements relating to Condition 13 were set out for approval in the CMS.	n/a – Addressed in MPCP submitted prior to construction

#### Table 1 Consent conditions to be discharged by the O&M MPCP



Condition Text	Applicability MPCP	to	O&M	Where Addressed
<ul> <li>(a) Commencement dates;</li> <li>(b) Working methods including the scope, frequency and hours of operations;</li> <li>(c) Duration and Phasing Information of key elements of construction, for example turbine structures, foundations, turbine locations, interarray cabling and land fall cabling;</li> <li>(d) Method of installation including techniques and equipment and depth of cable laying and cable landing sites;</li> </ul>				
(e) The use of Dynamic Positioning vessels and safety/guard vessels;				
(f) Pollution prevention measures including				
contingency plans; and				
(g) Design Statement				

#### 1.3 Linkages with other Consent Plans

This O&M MPCP sets out the provisions made for spills and collisions during the operation of the Development. It forms part of a suite of approved documents that provided the framework for the operation phase – namely the other Consent Plans, required under the S.36 Consent and the Marine Licence, which have relevance to the operational phase.

Marine Licence Condition 3.1.11 (see **Error! Reference source not found.** above) requires the MPCP to take into account existing plans for all operations including offshore installations, that may have an influence on the MPCP. The Offshore Environmental Management Plan (OEMP) (required under Condition 17 of the S.36 consent) detailed the procedures for environmental management through all stages of the Development. The OEMP has been updated to ensure relevance to operational phase only, and is now referred to as the O&M OEMP. The Cable Laying Strategy (CLS) (required under Condition 25 of the S.36 consent) details the methods that will or may be implemented during the operation of the Inter-array cables and the OECs.

In the event of an emergency (with a marine pollution element) this O&M MPCP will be referred to alongside the AOWFL Emergency Response Plan (ERP) (UAB-HSE-PR-002) and the Emergency Response Cooperation Plan (ERCoP) (UAB-HSE-PR-003).



## 2 STATEMENTS OF COMPLIANCE

#### 2.1 Introduction

The following statements are intended to reaffirm the AOWFL commitment to ensuring that the Development is operated in such a manner as to meet the relevant requirements set out by the Offshore Consents, as well as other broader legislative requirements.

### 2.2 Statements of Compliance

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with this O&M MPCP as approved by the Scottish Ministers (and as updated or amended from time to time following the procedure set out in Section 3 of this O&M MPCP).

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with other relevant Consent Plans, as approved by the Scottish Ministers, and as identified in Section 1.3 above.

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with the limits defined by the original application and the project description defined in the Environmental Statement (ES) and Supplementary Environmental Information Statement (SEIS) and referred to in Annex 1 of the S.36 Consent in so far as they apply to this O&M MPCP (unless otherwise approved in advance by the Scottish Ministers / the Licensing Authority).

AOWFL, in undertaking the operation of the EOWDC, will comply with AOWFL Health, Safety, Security and Environment (HSSE) systems and standards, the relevant HSSE legislation and such other relevant legislation and guidance so as to protect the safety of operational personnel and other third parties.

AOWFL, in undertaking the operation of the EOWDC, will take all necessary precautions to prevent pollution from entering the marine environment and / or any incident that leads to such pollution.

AOWFL will, in undertaking the operation of the EOWDC, ensure compliance with all other relevant legislation and require that all necessary licences and permissions are obtained by the Contractors and Subcontractors through condition of contract and by an appropriate auditing process. A list of relevant legislation is provided in Appendix A.

# VATTENFALL -3 UPDATES AND AMENDMENTS TO THIS O&M MPCP

This O&M MPCP sets out the provisions made in respect of spill incidents during the operational phase of the Development.

Where it is necessary to update this O&M MPCP in the light of any significant new information related to potential spill or collision incidents, AOWFL proposes to use the change management process set out in Figure 2; identifying such information, communicating such change to the Licensing Authority, redrafting the O&M MPCP if required, seeking further approval for the necessary amendments or updates and disseminating the approved changes/amendments to responsible parties.







## 4 SPILL CLASSIFICATION

#### 4.1 Introduction

The response strategy that will be adopted in the event of a spill will ultimately depend upon its classification using several factors:

- The size and characteristics of the spilled oil/chemical;
- Probable and predicted behaviour of the oil/chemical in the sea;
- Consideration of the environmental sensitivities in the path of the oil/chemical; and
- Consideration of the consequences of the different response options on the environment as a whole if they were to be adopted.

Oil (hydrocarbon) spills will be classified in accordance with the internationally recognised and accepted three tier oil spill classification system (Figure 3).

Chemical spills will be classified according to the characteristics of the chemical and the behaviour exhibited by the chemical when released into the marine environment (i.e. whether the chemical evaporates, floats on the surface of the water, dissolves in the water, or sinks to the seabed), see Section 5.3 for further information.

# This O&M MPCP outlines emergency response procedures developed to respond to Tier 1 Incidents (as defined in Figure 3).

#### Tier 2 and 3 incident response fall outside of this O&M MPCP, however references to Tier 2 and 3 incidents have been included to assist in the escalation and de-escalation processes should the demands of an incident response exceed Tier 1 capability.

Within the scope of this document a Tier 1 incident may include scenarios such as small releases to water that can be managed by onsite staff. If there is any level of uncertainty regarding the ability of AOWFL or contractors to respond, the response will be escalated to Tier 2 and professional contractors will be mobilised.

### 4.2 Oil Spills Classification

Figure 3 is provided as an aid to tier definition for any individual reporting and responding to a hydrocarbon spill. The Primary Responder (the person(s) who will assume primacy in the event of a marine pollution incident and manage initial response (Vessel Master or Marine Coordinator) will compile all available information and make a determination on response strategy and tier classification. If necessary, advice will be sought from Aberdeen Coastguard Operations Centre (CGOC) and a specialist accredited Oil Spill Response Contractor.

#### Figure 3 Oil Spill Tier Assessment Table

#### TICK <u>ALL</u> BOXES THAT APPLY: ☑ IF YOU ARE UNSURE, ASSUME WORST CASE



	TIER 1						
Small oil spills, or those which can be quickly and easily cleaned up using on-site resources or local Contractors							
	Oil is contained within the incident site Spill occurs within immediate site proximity Able to respond to the spill immediately		Source of spill has been contained Oil is evaporating quickly and no danger of explosive vapours (e.g. diesel) Spill likely to naturally disperse No media interest				
	TIER 2						
Oil spills which pose a threat of significant pollution resulting in the mobilisation of external oil spill response resources on a regional level							
	Danger of fire or explosion Possible continuous release Concentrated oil accumulating in close proximity to the site / vessel, etc. Spill occurs within the vicinity of the operational site		Not able to respond to the spill immediately Potential to impact other installations Tier 1 resources overwhelmed, requiring additional Tier 2 regional resources Potential impact to sensitive areas and/or local communities Local/ national media attention				
	т	ER :	3				
	Catastrophic oil spills which pose a threat of significant pollution resulting in the mobilisation of external oil spill response resources on a national/ international level						
	Actual or potentially serious threat to life, property, industry Major spill beyond site vicinity Significant shoreline impact possible		Tier 2 resources overwhelmed, requiring international Tier 3 resources ( <i>appointment of</i> <i>an accredited Tier 2/3 Contractor</i> ) Oil migrating towards neighbouring countries Significant impact on local communities International media attention				

## 4.3 Chemical Spills Classification

Volumes of chemicals used in the Development are not anticipated to exceed a Tier 1 small spill (on the oil spill tier classification system provided in Figure 3) if an incident occurred.

# 5 MARINE POLLUTION PROCEDURES



#### 5.1 Introduction

This section sets out the response strategies and procedures to be adhered to in the event of a marine pollution incident from a vessel or a WTG at the EOWDC.

AOWFL requires that any spill into the marine environment is responded to following the procedures set out below, and all spills are reported to the Licensing Authority, Marine Scotland. Potential spills (i.e. spills which do not enter the marine environment) will be reported internally within Vattenfall via the HSSE incident reporting software 'Intelex'. This programme requires lessons learnt processes to be followed and mitigation to be identified and implemented where appropriate. AOWFL vessels will respond to spills originating from none-EOWDC related activities / vessels in line with requests from the MCA and in line with international regulations.

Priority in the event of a spill is to take measures to ensure the safety of personnel and the offshore installations and vessels, and to prevent escalation of the incident.

Where a spillage is part of a wider emergency, such as fire or explosion, reference should also be made to the EOWDC Emergency Response Cooperation Plan (ERCoP) (Document ref no UAB-HSE-PR-003) and Offshore Emergency Response Plan (Document reference no UAB-HSE-PR-002).

## 5.2 Oil Spill Response Strategies

A brief summary of potential response techniques for different types of oil (according to their behaviour in water) is presented below, noting that Tier 2 and 3 responses are outside the scope of this O&M MPCP:

Tier &	Response strategies					
Resources	Non-persistent Oil (Marine Gas Oil and Diesel)	Persistent Oil (Hydraulic and Lube Oils)				
Tier 1 (small spill) On site resources	<ul> <li>Natural dispersion and monitoring (using support vessel).</li> <li>If safe to do so, agitate using standby vessel propeller ('propwash'), by steaming through the slick at speed</li> <li>Potential application of a licensed bioremediation agent in line with manufacturers guidance with approval from regulatory bodies.</li> </ul>	<ul> <li>Natural dispersion and monitoring.</li> <li>Mechanical recovery where possible.</li> <li>Potential application of a licensed bioremediation agent in line with manufacturers guidance with approval from regulatory bodies.</li> </ul>				
It should be noted that Tier 2 and 3 spills are beyond the scope of this O&M MPCP. In the event of a Tier 2 or 3 spill, an accredited Oil Spill Response Contractor will be mobilised.						
Tier 2 (medium spill)	<ul><li>Natural dispersion and monitoring.</li><li>Dispersant application may be</li></ul>	Consult specialist services from an accredited Oil Spill Response				



Tier &	Response strategies					
Resources	Non-persistent Oil (Marine Gas Oil and Diesel)	Persistent Oil (Hydraulic and Lube Oils)				
Spill Response Contractor and additional support where necessary	<ul> <li>considered – however for light, non-persistent oils this is unlikely to be a viable response.</li> <li>If considered a viable response, dispersants would only be used if safety or environmental sensitivities are threatened and would only be used with the express permission of the licensing authority.</li> </ul>	<ul> <li>Contractor.</li> <li>Continue to monitor and evaluate strategy using aerial surveillance.</li> <li>Boat-based dispersant application-liaise with an accredited Oil Spill Response Contractor as required.</li> <li>Consider mechanical recovery where possible.</li> <li>Mobilise shoreline containment and recovery equipment if shoreline is threatened (with close engagement with local authorities and land owners if required) – accredited Oil Spill Response Contractor to engage additional support if necessary.</li> </ul>				
Tier 3 (large spill) Appointment of a Tier 2/3 Spill Response Contractor	<ul> <li>Natural dispersion and monitoring (aerial surveillance).</li> <li>Dispersant application may be considered – however for light, non-persistent oils this is unlikely to be a viable response.</li> <li>If considered a viable response, dispersants would only be used if safety or environmental sensitivities are threatened and would only be used with the express permission of the licensing authority.</li> </ul>	<ul> <li>Contract specialist services through the appointment of a Tier 2/3 accredited Oil Spill Response Contractor.</li> <li>Continue to monitor and evaluate strategy using aerial surveillance.</li> <li>Boat based or aerial dispersant application – through appointment of a Tier 2/3 accredited Oil Spill Response Contractor.</li> <li>Mechanical recovery where possible.</li> <li>Mobilise shoreline containment and recovery equipment if shoreline is threatened (with close engagement with local authorities and land owners if required) – accredited Oil Spill Response Contractor to engage additional support if necessary.</li> </ul>				

### 5.3 Chemical Spill Response Strategies

Volumes of chemicals utilised in the Development will be relatively small. Chemical spills are considered unlikely.

Under Marine Licence condition 3.1.6, all chemicals to be utilised at the EOWDC must be approved in writing by the Licensing Authority prior to use. In addition, all chemicals to be utilised at the EOWDC must be selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemical Regulations 2002, unless approved in writing by the licensing Authority.

A brief summary of potential response techniques for different groups of chemicals (according to their behaviour on contact with water) is presented below:



- Gases and Evaporators The release of a gas or evaporating liquid chemical has the
  potential to generate vapour clouds that might be toxic or form an explosive mixture
  with air. In an open environment, toxic vapour will usually disperse as a result of natural
  air movement and often the only feasible response measure will be to monitor any
  vapour cloud/plume as it disperses.
- Floaters Floaters may spreads across the water surface to form a slick. For spills involving relatively persistent chemicals that float, it may be possible to detect and monitor floating materials. If safe, it may be possible to consider deploying booms to contain and control the movement of substances. Skimmers and other oil response equipment may also be used to recover material from the surface. Containment and recovery may not be advisable when dealing with highly toxic or flammable chemicals. In certain circumstances, sorbent materials may be deployed to collect and concentrate a chemical spill. The assessment of these chemicals may utilise the oil spill Tier Strategy described in Section 4.2.
- **Dissolvers** The ability to contain and recover dissolved chemicals in extremely limited. Providing means to accelerate the natural processes of dispersion and dilution may be the only way to respond to spills of such chemicals. Some dissolved chemical plumes may, in theory, be neutralised, flocculated, oxidised or reduced by the application of other chemicals, but chemical treatment is unlikely to be practical and would not normally be recommended.
- Sinkers Chemicals that sink have the potential to contaminate the seabed and may persist in sediments. Any response may therefore need to consider the recovery of any chemicals and heavily contaminated sediment. In shallow waters, mechanical dredgers and pump/vacuum devices may be used to recover materials.



## 5.4 AOWFL Response Procedures

#### 5.4.1 Spills Originating from a Vessel

The process set out below should be followed in the event of a marine pollution (hydrocarbon or chemical) incident where a spill originates from a vessel, from vessel related activity or from a Contractor owned asset during maintenance of the wind farm:

- When a spill is observed, it will be reported to the Vessel Master.
- The Vessel Master will report the spill as soon as it is safe to do so via phone, to the CGOC and to the Marine Coordinator, who then contacts the Service Leader.
- Verbal notification to CGOC Aberdeen should be followed up when practicable with the submission by the Vessel Master of a Marine Pollution Report (POLREP) via email to the CGOC and to the Marine Coordinator. The Vessel Master will ensure the POLREP has been received by a follow up email and call.
- The Vessel Master (with Contractor responsible for the vessel from which the spill has originated) will engage the vessel Shipboard Oil Pollution Emergency Plan (SOPEP) and assume primacy for the incident, ensuring ongoing reporting on spill status as necessary and initiating response or clean-up operations as required, including application of a licensed bioremediation agent if deemed appropriate. The Vessel Master and relevant Contractor, as the Primary Responder, will request support from a specialist accredited Oil Spill Response Contractor as required. The Marine Coordinator will provide a supporting role and assist with communication throughout an incident, supporting the shore based response where required.
- In the event that a regional or national (Tier 2 or 3) response is required the MCA may implement the National Contingency Plan (NCP) (as detailed in Section 7.1.3).
- The Environmental Specialist will be available to advise on environmental sensitivities for consideration when developing a response strategy and will report to the Licensing Authority.
- The detailed stages of this process are outlined in Appendix C.

AOWFL will request Contractors to hold a copy of this MPCP on the bridge of any large maintenance vessels.

The key actions and notifications in the event of an oil spill originating from a vessel are summarised in Appendix C. These checklists should be referred to and completed in the event of an oil spill arising from a vessel or vessel related activity and actions and notifications checked off during incident response (following the key stages set out above). Completed checklists will be submitted to the Marine Coordinator following the incident as part of the auditing process to determine lessons learned from any spill response procedures, and any amendments to procedures required to prevent the incident occurring again.

Following initial notification of the spill, communications between all parties is likely to be regular and ongoing throughout the response.



## 5.4.2 Spills Originating from a WTG

As detailed in Appendix H the quantities and type of hydrocarbons and chemicals on the WTGs are not sufficient to warrant a Tier 2 or Tier 3 response. Any leakage from the equipment within the nacelle will be contained by the nacelle cover and any leakage from the transformer in the tower will be contained by a bund.

The process set out below should be followed in the event of a marine pollution (hydrocarbon or chemical) incident where a spill originates from a WTG.

- When a spill is observed originating from WTGs, it will be reported to the Marine Coordinator by the Spill Observer, who would then contact the CGOC and Service Leader.
- Verbal notification should be followed up when practicable with the submission of a POLREP via email to the CGOC by the Marine Coordinator. The Marine Coordinator will ensure the POLREP has been received by a follow up email and call.
- The Marine Coordinator will engage the MPCP and assume primacy of the incident.
- The Marine Coordinator will be responsible for ongoing reporting on spill status and will coordinate an initial response with the Spill Observer who may utilise spill kits on the WTG, and may apply a licensed bioremediation agent into the spill in the water as per manufacturers guidance, if suitably trained.
- The Environmental Specialist will be available to advise on environmental sensitivities for consideration when developing a response strategy and will report to the Licensing Authority.
- The Marine Coordinator will request support from a specialist accredited Oil Spill Response Contractor as required.

Key actions and notifications in the event of an oil spill originating from an EOWDC WTG are summarised in Appendix C. These checklists should be referred to and completed in the event of an oil spill originating from a WTG and actions and notifications checked off during incident response (following the key stages set out above). Completed checklists will be submitted to the Marine Coordinator following the incident as part of the auditing process to determine lessons learned from any spill response procedures, and any amendments to procedures required to prevent the incident occurring again.

Following initial notification of the spill, communications between all parties is likely to be regular and ongoing throughout the response.

## 5.5 Incident Response Forms

Several Incident Response Forms are provided to be completed as appropriate by the specified person in the event of an oil or chemical spill in Appendix D as listed below:

• Oil Spill Assessment Form;


- Marine Pollution Incident Report- CG77 POLREP;
- Oil Spill Incident Log Sheet; and
- Incident Briefing Checklist.

No dispersants are currently proposed to be utilised for Tier 1 spills. An approved bioremediation agent may be applied if considered appropriate.



## 6 MPCP ROLES AND RESPONSIBILITIES

AOWFL and AOWFL's Contractors are responsible for:

- Developing, maintaining and communicating their own MPCPs or equivalent spill plans consistent with this MPCP;
- Managing an ongoing spill response;
- Liaising and co-operating with statutory bodies in the event of a spill.

The responsibilities of those with specific pollution prevention and response roles are set out below.

## 6.1 AOWFL

AOWFL recognises that as the Licence Holder, it is responsible for ensuring adequate resources and procedures are in place and available to prevent any oil or chemical spill originating from the Development during its lifetime or where such spills occur to ensure they are adequately dealt with. AOWFL will require that all Contractors and Subcontractors, through conditions of contract, make appropriate provisions commensurate with the level of risk associated with their activities to prevent or respond to any oil or chemical spills during Operation of the Development.

## 6.1.1 Environmental Specialist

The Environmental Specialist will review Contractor pollution prevention and response documents and arrangements to ensure compliance with this MPCP. The Environmental Specialist will provide advice to the Primary Responder (Vessel Master or Marine Coordinator) as required in relation to potential environmental risk arising from oil or chemical spills.

In the event of a pollution incident, the Environmental Specialist will receive a log of all actions taken and notifications issued during response. The Environmental Specialist will also provide support to the Primary Responder, as required, in determining an appropriate response strategy. On the closure of an incident, the Environmental Specialist will be part of the lessons-learnt exercise and may assist the O&M Manager in conjunction with the Marine Coordinator and H&S Specialist on any required updates to the O&M MPCP in the context of the Consents.

Where a pollution incident requires a Tier 2 or Tier 3 response (see Section 4 for Tier definition) the Environmental Specialist will be available to engage with the MCA and established response cells (see details on the NCP, Section 7.1.3) including the SEG to provide project specific environmental information to feed into the response strategy.

Throughout the duration of any incident the Environmental Specialist will also maintain a record of any observed mortality or other effects on marine biota (such as marine mammals, birds and fish) as may be reported to them. These incidental records will be provided to relevant response cells, including the SEG and will, where appropriate, be considered in the formulation of a response strategy. The incidental records of marine wildlife observations will be provided to Marine Scotland - Licensing and Operations Team (MS-LOT) as part of the wider reporting strategy (as set out in the OEMP).



Further details on the specific responsibilities of the Environmental Specialist during a marine pollution incident are set out under Appendix C

## 6.1.2 Marine Coordinator

A project Marine Coordination Centre (MCC) is established at Esbjerg, Denmark from where O&M activities are coordinated. In addition to coordinating day-to-day vessel activity in the Development Area, the Marine Coordinator will be the main AOWFL point of contact in the event of emergency and pollution incidents. In the event of a pollution incident originating from a vessel or vessel related activity, the Marine Coordinator will assist with the coordination and execution of the ongoing response maintaining close communication with the Primary Responder and liaising with the MCA, other contractors and statutory authorities if required. Where a spill is from an AOWFL installation the Marine Coordinator will manage the spill response and coordinate any clean-up operations.

Further detail on the specific responsibilities of the Marine Coordinator during a marine pollution incident are set out in Appendix C

## 6.1.3 Vessel Master

The Vessel Master has overall responsibility for their vessel. The Vessel Master is responsible for activating the SOPEP with the contractor responsible for the vessel, or equivalent vessel-specific spill plan once reported, when a spill originates from their vessel. The Vessel Master will maintain the safety of personnel, confirm source, initiate a log of events, undertake the necessary notifications and coordinate the monitoring, tracking and sampling of the spill and submit the POLREP via email to the CGOC and to the Marine Coordinator. The Marine Coordinator will ensure the POLREP has been received by a follow up email and call.

The Vessel Master will liaise with the MCA and other relevant authorities as advised by the MCA to decide upon and implement the initial response strategy in line with the vessel SOPEP.

Further detail on the specific responsibilities of the Vessel Master during a marine pollution incident are set out under Appendix C.

## 6.1.4 Spill Observer

The Spill Observer is the first person sighting the pollution incident and must report it to the Vessel Master or Marine Coordinator as necessary.

If the spill occurs from a WTG the Spill Observer must take actions to stop the leakage at the source, maintain safety of personnel and initiate a log of event and actions.

Further detail on the specific responsibilities of the Spill Observer during a pollution incident are set out under Appendix C.

## 6.1.5 Service Leader

The Service Leader is available 24 hours a day to provide assistance to the Marine Coordinator and Vessel Master wherever necessary and is responsible for confirming contact made with the CGOC.



## 6.1.6 O&M Manager

The O&M Manager is available during office hours to initiate the investigation, closure and lessons learned process post incident.

## 6.1.7 Site Manager

The Site Manger will be informed of an incident by the Marine Coordinator of any pollution incident.

## 6.2 Contractors

O&M will be carried out by a combination of AOWFL and its Contractors. AOWFL will require that all Contractors and Subcontractors are familiar with this O&M MPCP. Contractors and Subcontractors will ensure that Contractor SOPEP or equivalent Contractor-specific plans are compliant with the approved MPCP.

Contractors are expected to prepare and implement their own MPCPs or bridging document, specific to the works that they are responsible for, which are to be compliant with the content of this document. Contractor-specific MPCPs or bridging documents should clearly interface with existing SOPEPs or equivalent vessel-specific spill plans (for spills that originate from a vessel, or from operations taking place on a vessel related to the activity that they are contracted to carry out). Spill response should be a part of scheduled vessel drills.

In the event of a spill from a vessel or from operations taking place on a vessel or from an installation where AOWFL has not yet taken ownership, the Contractor will assume primacy of the incident and be responsible for implementing an immediate response in accordance with their own SOPEP (or other relevant spill plan), which will be consistent with the requirements of this MPCP, and for informing AOWFL of their actions.

The specific responsibilities of Contractors including Vessel Masters during a marine pollution incident are set out under Appendix C.

## 6.3 Oil Spill Response Contractor

During the O&M phase, an oil spill response organisation will be contracted dependent upon the offshore operations being undertaken.

## 6.4 MPCP Training

All personnel likely to be involved in a marine pollution incident have to meet AOWFL training requirements and standards.

Those individuals with MPCP responsibilities will be required by AOWFL to have received or to undergo training appropriate to their role in spill response.

Additionally, AOWFL will require that all project personnel involved in O&M activities participate in inductions and subsequent toolbox talks that will brief individuals on the content of the AOWFL O&M MPCP and confirm their role in pollution prevention and response.



AOWFL will establish a programme of ongoing exercises for maintained proficiency and continual improvement in pollution prevention and spill response. This programme may include hands-on equipment deployments, and incident management and notification exercises.

# 7 INTERFACING OIL POLLUTION CONTINGENCY PLANS AND ORGANISATIONS

Marine Licence Condition 3.2.11 requires that:

The MPCP must take into account existing plans for all operations, including offshore installations, that may have an influence on the MPCP.

The following sections set out how this O&M MPCP will interface with existing oil pollution contingency plans.

Within the UK there is an adopted structure and procedure for response to marine pollution events, which clearly defines the roles and responsibilities of industry, the UK Government and Local Authorities. Further information on the jurisdiction and roles of statutory bodies and industry in the event of a spill is provided in Appendix G.

In the event of a spill originating from Development activity, the Marine Coordinator will ensure that other operators and/or vessels in the vicinity that may be impacted, are notified. Where a spill originating from the Development drifts towards and/or reaches neighbouring installations and/or vessels, this may instigate activation of their own pollution contingency plans. Where appropriate AOWFL will work to implement a co-ordinated response and share pollution response resources.

Other pollution contingency plans, which may interact with this O&M MPCP in the event of a spill originating from the Development, are identified below.

## 7.1.1 Industry Plans

This MPCP interfaces with the following industry standard plans:

- SOPEPs/equivalent vessel-specific spill plan for each vessel;
- Port and Harbour Oil Spill Contingency Plans (OSCPs); and
- Oil Pollution Emergency Plans (OPEPs) for other offshore installations.

Other installations and operators must be notified in the event of a spill.

Hywind Scotland Pilot Park and Kincardine Offshore Wind Farm are now operational and will have their own approved MPCPs. Any future offshore wind farms constructed in the vicinity of the EOWDC will also have approved MPCPs. Furthermore, ports utilised during O&M such as Aberdeen Harbour, will have their own OSCP to cover incidents within the port and harbour limits. The Harbour's OSCP would take priority over the EOWDC MPCP in the event of a major spill in the harbour and port limits, in terms of response to an incident.

Assuming pollution from an unidentifiable source is drifting towards the Development, AOWFL shall comply fully with any instructions from the MCA or other relevant authority in order to facilitate an appropriate pollution response. This may include shut-down of the wind farm to allow mechanical recovery of the pollution or dispersant application in accordance with the MCA's Marine Guidance Notice (MGN) 543 including Annex 5. In addition, the Spill Observer will escalate the reporting procedures and initial response actions as detailed within Section



5.2. As soon as the source has been identified, the relevant installation/operator will be notified and AOWFL and/or their Contractors will continue to provide a supporting role.

## 7.1.2 Local Authority Plans

In the event of actual or threatened shoreline impact, the oil spill contingency plan administered by the relevant Local Authority (in this case co-ordinated by the Grampian Emergency Planning Unit on behalf of Aberdeenshire Council) will be implemented.

## 7.1.3 National Contingency Plan

In the event of a significant oil spill incident, which calls for a Tier 2 or Tier 3 response (see Section 0 for Tier definition), the MCA may decide to implement the NCP. In such an event, the MCA may establish a Marine Response Centre (MRC).

The role of the SOSREP is to represent the Secretaries of State for Transport and BEIS by removing or reducing the risk to persons, property and the UK environment arising from accidents involving ships, fixed or floating platforms or sub-sea infrastructure within UK waters, within the remainder of the Exclusive Economic Zone (EEZ) and on the UK Continental Shelf. The SOSREP has the ultimate and decisive voice for maritime salvage, offshore containments and intervention and is empowered to make crucial, often time-critical decisions without delay or recourse to a higher authority where such decisions are in the overriding UK public interest.

Once notified the Counter Pollution and Salvage (CPS) Branch of the MCA will determine the need to establish a MRC. The MRC will consider and implement the most appropriate means to contain, disperse and remove pollutants from the scene in the event of a national (Tier 3 and possible Tier 2) incident. The SOSREP will also determine the need for a Salvage Control Unit (SCU) to monitor salvage activity and ensure that actions being taken in the case of a shipping event do not have an adverse effect on safety and the environment.

The MCA will determine whether it is necessary to convene the Scottish SEG to provide advice on public health and environmental issues that require a regional or national response. The scope of the SEG functions will be directly proportional to the scale and nature of the incident, its geographical location, extent, severity, pollutant involved, potential hazard to human health and environmental sensitivities. The scale of the incident and response and their constituent phases are likely to evolve over time and the functions of the SEG will need to be graduated to meet changing requirements, escalating or diminishing in the input to each phase over time (MCA Scientific, Technical and Operational Advice Note (STOp) notice 2/15).

The core members that will comprise the SEG will include representatives from Marine Scotland, who will chair the group, Scottish Environment Protection Agency (SEPA), Joint Nature Conservation Committee (JNCC), NatureScot (previously known as Scottish Natural Heritage (SNH)) and National Health Service (NHS) Scotland.

Additional groups may be established where pollution threatens the coastline including the Strategic Coordinating Group (SCG) to manage the onshore response strategy and the Tactical Coordinating Group (TCG) to develop an onshore operational response plan. A STAC may be established to provide advice to the SCG and TCG. The STAC will execute a similar



function as the SEG. The SEG will work closely with the STAC and in some circumstances may merge fully to provide consistent advice in the event of a Tier 2 or 3 incident. Further details on the MCA NCP can be found online at:

<https://www.gov.uk/government/publications/national-contingency-planncp#history.



# 8 COMPLIANCE WITH APPLICATION AND SEIS

## 8.1 Introduction

In addition to the conditions presented in **Error! Reference source not found.**, Condition 7 of the S.36 Consent states:

"The Development must be constructed and operated in accordance with the terms of the Application and the accompanying Environmental Statement and the Supplementary Environmental Information Statement, except in so far as amended by the terms of the Section 36 consent and any direction made by the Scottish Ministers."

Section 8.2 sets out that the commitments made in the Application, ES and SEIS will be delivered.

# 8.2 Delivery of the Marine Pollution Related Mitigation Proposed in the ES

The ES and associated SEIS detailed a number of mitigation commitments relevant to the operational phase of the Development. Appendix G sets out where each commitment has been addressed within this O&M MPCP.



# 9 REFERENCES

AOWFL (2012) European Offshore Wind Deployment Centre Environmental Statement Addendum (SEIS).

Bonn Agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances (2004) Part 3: Guidelines for Oil Pollution Detection, Investigation and Post Flight Analysis/ Evaluation for volume estimation, Internet; available: <a href="http://www.bonnagreement.org/eng/html/welcome.html">http://www.bonnagreement.org/eng/html/welcome.html</a>.

BEIS (2016) PON1 – pro-forma for reporting oil and chemical releases-discharges from offshore installations and pipelines Oct 2016), Internet; available: <*https://www.gov.uk/guidance/oil-and-gas-environmental-alerts-and-incident-reporting#pon-*1>.

BEIS (2011) PON1 – guidance for reporting oil and chemical releases and permitted discharge notifications from offshore installations and pipelines.

European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) (2011) United Nations Economic Commission for Europe (UNECE), Internet; available: <<u>http://www.unece.org/trans/danger/publi/adr/adr2011/11ContentsE.html</u>>.

International Maritime dangerous Goods (IMDG) Code (2012) IMDG Code inc. Amendment 35-10 (in force from 1 January 2012), Internet; available: <a href="http://www.imo.org/Publications/IMDGCode/Pages/Default.aspx">http://www.imo.org/Publications/IMDGCode/Pages/Default.aspx</a>>.

International Tanker Owners Pollution Federation Limited (ITOPF) (2002) The Rate of Removal of Oil from the Sea Surface According to Type, Internet; available: <<u>http://www.itopf.com/marine-spills/fate/models/</u>>.

International Tanker Owners Pollution Federation Limited (ITOPF) (2012a) ITOPF Handbook 2012/13, Internet; available: <<u>http://www.itopf.com/information-services/publications/</u>>.

International Tanker Owners Pollution Federation Limited (ITOPF) (2012b) Fate of Spilled Oil, Internet; available: <<u>http://www.itopf.com/marine-spills/fate/</u>>.

Lewis, A. (2007) Current status of the Bonn Agreement Oil Appearance Code, Report to the Netherlands North Sea Agency, (January 2007).

Marine Management Organisation (MMO) (2015) How to use oil spill treatment products and equipment, 29<sup>th</sup> April 2015, Internet; available: <a href="https://www.gov.uk/government/publications/how-to-use-oil-spill-treatment-products-and-equipment">https://www.gov.uk/government/publications/how-to-use-oil-spill-treatment-products-and-equipment >

Marine Management Organisation (MMO) (2016) Marine Pollution Contingency Plan, May 2016;

https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/523789/Marin e\_Pollution\_Contingency\_Plan\_May\_2016.pdf

Marine Scotland (2013) Section 36 Consent Granted by the Scottish Ministers to Construct and Operate the European Offshore Wind Deployment Centre (EOWDC) Electricity Generating Station, Aberdeen Bay, Approximately 2 km Eats of Blackdog, Aberdeenshire.

Maritime & Coastguard Agency (MCA) (2006) National Contingency Plan for Marine Pollution from Shipping and Offshore Installations, August 2006, Internet; available:



<<u>http://www.dft.gov.uk/mca/ncp\_final\_version\_-august\_2006.pdf</u>>.

Maritime & Coastguard Agency (MCA) (2012) Merchant Shipping Notice No. 1829(M), Ship to Ship Transfer Regulations 2010/2012, available: <<u>https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/281942/msn</u> 1829.pdf>

Oil Spill Response Limited (OSRL) (2006) Spill Responder's Handbook.

SEPA (2013) PPG 1 General Guide to the Prevention of Pollution.

SEPA (2011) GPP 2 Above Ground Oil Storage Tanks.

SEPA (2017) GPP 5 Works and Maintenance in or near Water.

SEPA (2012) PPG 6 Working at Construction and Demolition Sites.

SEPA (2011) PPG 7 Safe Storage - The Safe Operation of Refuelling Facilities.

SEPA (2004) PPG 8 Safe Storage and Disposal of Used Oils.

CIRIA (2001) C532 Control of Water Pollution from Construction Sites.

CIRIA (2006) C648 Control of Water Pollution from Linear Construction Projects – Technical Guidance.

CIRIA (2015) C741 Environmental Good Practice on Site.



# **APPENDIX A - MPCP LEGISLATION REGISTER**

Table A1 provides a list of the relevant legislation that has been taken into account in the drafting of this MPCP.

Table A1 -	Legislation	Register
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Legislation	Relevance to EOWDC	Summary	Regulatory Body
Waste and Disch	narges		
Offshore Chemicals (Amendment) Regulations 2011, extending Offshore Chemical Regulations 2002 (as amended)	Control of Chemical Usage	Provides a mandatory control system for the use and discharge of chemicals by the offshore oil and gas industry. Under the terms of the Marine Licence (condition 3.1.6) the Offshore Chemical Regulations should be followed during construction and O&M works with utilised chemicals selected from the List of Notified Chemicals.	BEIS, Marine Scotland
Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008	Sewage and Garbage treatment, storage and disposal	Implement both the revised Annex IV of MARPOL 73/78 – Regulations for the Prevention of Pollution by Sewage from Ships, and the Annex V of MARPOL 73/78 (including amendments) – Regulations for the Prevention of Pollution by Garbage from Ships. Implements into UK law international regulations on treatment and disposal of garbage and food waste from vessels operating in UK water.	MCA
		All ships of 400 gross tonnage or above and every ship which is certified to carry 15 or more persons must carry a Garbage Management Plan and a Garbage Record Book. The regulations also provide powers for the MCA to issue an International Sewage Pollution Prevention Certificate to ships in the same categories.	
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004	Ballast water management	Objective to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens though control and management of ships' ballast water and sediments. Under this regulation, all ships in the UK are required to have a Ballast Water Exchange Management Plan and a Ballast Water Record Book and to be surveyed and issued with an International Ballast Water Management Certificate.	MCA



Legislation	Relevance to EOWDC	Summary	Regulatory Body
The Merchant Shipping (Anti- Fouling Systems) Regulations 2009	Anti-fouling Pollution prevention	Prohibits the use of harmful organotin compounds in anti-fouling paints used on ships and will establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships.	MCA
		Provides powers for the MCA to issue an International Anti-fouling System Certificate to ships of 400 gross tonnage or above and ships of less than 400 gross tonnage with a length of greater than 24 metres.	
The Marine (Scotland) Act 2010 (in respect of Scottish territorial waters) and the Marine and Coastal Access Act 2009 (in respect of the offshore area)	Deposition of substances	These Acts provide that a licence must be obtained for the deposition of any substance or object (including waste), either in the sea or on or under the sea bed. On 15 August 2014 a marine licence was attained under section 25 of the Marine (Scotland) Act 2010 (reference 04309/16/0).	Marine Scotland
Control of Substances Hazardous to Health Regulations 2002 COSHH	Control of substances hazardous to health	Assessment, prevention or control of exposure and monitoring of substances hazardous to health.	HSE
The REACH Enforcement Regulations 2008 (as amended)	Chemical usage	These enforce Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) which require chemical users to demonstrate the safe manufacture of chemicals and their safe use throughout the supply chain. Under REACH, the users of chemicals as well as their manufacturers and importers have a responsibility to ensure that the risks to both human health and the environment are adequately assessed.	BEIS, Marine Scotland
The Classification, Labelling and Packaging (CLP) Regulations 2009	Chemical Usage	The CLP Regulation adopts the United Nations' Globally Harmonised System (GHS) on the classification and labelling of chemicals across all European Union countries, including the UK.	HSE



Legislation	Relevance to EOWDC	Summary	Regulatory Body
Pollution Contro	I		
Merchant Shipping Act 1995	Prevention of pollution	The Merchant Shipping Act 1995 provides the framework for regulation of ship-source pollution.	MCA
The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996 (as amended)	Prevention of oil pollution	These Regulations give effect to Annex I of MARPOL 73/78 (prevention of oil pollution) in UK waters. They address oily drainage from machinery spaces on vessels and installations and sets limits for the levels of oil in discharged water from these sources. Vessels and installations are required to hold a valid Oil Pollution Prevention Certificate. Vessels are also required to hold a current, approved SOPEP in accordance with guidelines issued by the International Maritime Organisation (IMO). Oil tankers of 150 gross tonnage and above are required carry an Oil Record Book to record when specific operations take place on board which have the potential to lead to oil pollution from vessels and an approved SOPEP.	BEIS, Marine Scotland, MCA
Bonn Agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances (1983)	Prevention of oil pollution Pollution protection	An agreement to combat oil pollution and to stimulate active cooperation and mutual assistance among states bordering the North Sea in case of casualties or other incidents at sea that are of great concern for the protection of the coasts and related interests.	BEIS, Marine Scotland, MCA
Marine Management Organisation (MMO) (2016) Approved oil spill treatment products	Oil spill response	Quick reference list of products approved for use on the UK Continental Shelf.	MMO, Marine Scotland
Marine Safety Agency (MSA) (1996) MSN No. M.1663, Vessels Engaged in Oil Recovery. (It	Oil spill response	Provides guidelines for the design, construction, ship's equipment and operation of offshore support vessels, which may be required to have the capability of handling, storing and transporting oil recovered from a spill in emergency situations.	MSA



Legislation	Relevance to EOWDC	Summary	Regulatory Body
should be noted that this MSN expired but was not superseded so this will be followed as best practise).			
The Merchant Shipping (Ship- To-Ship Transfers) Regulations 2010 (as amended)	Refuelling operations Cargo transfers	Bring in controls on ship-to-ship transfers in UK waters, including prohibiting ship-to-ship transfers and bunkering operations outside harbour authority waters and put in place a legislative regime for assessing and licensing harbour authorities which propose to allow ship-to-ship transfers in their waters. Merchant Shipping Notice (MSN) 1829 "Ship to Ship Transfer Regulations 2010/2012" sets out detailed requirements regarding Ship to Ship Transfers of a cargo consisting wholly or mainly of oil. The Notice is given statutory force by the Merchant Shipping (Ship to Ship Transfers) Regulations 2010 (as amended). An exemption is provided in MSN 1829 for vessels to refuel, or be refuelled by daughter-craft, so as not to impair operationally necessary refuelling.	MCA
The Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998 (OPRC Regulations) (as amended)	Oil spill	The Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998 introduce into UK law the oil spill planning requirements and legal oil spill reporting requirements of the Oil Pollution Preparedness, Response and Co- operation (OPRC) Convention.	BEIS, Marine Scotland, MCA
The Merchant Shipping (International Safety Management (ISM) Code) Regulations 2014	Pollution prevention	Provides for the application of the ISM Code on all vessels to which the Convention for the Safety of Life at Sea (SOLAS) applies and to other vessels to which European Commission regulations apply. The ISM Code provides an international standard for the safe management and operation of ships and for pollution prevention.	MCA
The Merchant Shipping (Dangerous or Noxious Liquid	Chemical transportation	These Regulations contain restrictions on all ships carrying in bulk noxious liquid substances or unassessed liquid substances.	MCA



Legislation	Relevance to EOWDC	Summary	Regulatory Body
Substances in Bulk) Regulations Amendments 2004			
Merchant Shipping (Reporting Requirements for Ships Carrying Dangerous or Polluting Goods) Regulations 1995/2498 (as amended, 2204/SI 2110 and 2005/SI1092)	Pollution response	These regulations contain requirements in connection with reporting requirements for discharges, during the operation of a ship, of oil or noxious liquid	MCA
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997/2367	Pollution prevention	Regulations apply to ships carrying dangerous goods in bulk or packaged form or marine pollutants in packaged form.	MCA
Merchant Shipping (Prevention of Pollution: Substances Other than Oil) (Intervention) Order 1997/1869	Pollution prevention	These regulations list the substances other than oil to which the restrictions contained in the Merchant Shipping Act 1995 apply. Also see MGN 37 (M) for guidance on the application of this legislation.	MCA
Wreck Convention Act 2011	Reporting, locating and removal of wrecks	Includes provisions on the reporting, locating, marking and removal of wrecks and provisions regulating the liability for costs involved in dealing with wrecks.	MCA



# **APPENDIX B - RESPONSE STRATEGY GUIDELINES**

This Appendix provides supporting information to personnel involved in planning and executing oil spill response for AOWFL's offshore operations.

The following sections provide information on each type of response strategy available in the event of a spill at sea and provides details on factors affecting selection and deployment of response.

The response strategy adopted will depend upon the spill details and the prevailing environmental conditions. The essential information required as a basis for decision making is:

- Size and status of the oil spill (e.g. controlled or uncontrolled);
- Location of the oil slick;
- Type of oil and its characteristics;
- Meteorological information, current and predicted weather and sea state;
- Authorities informed;
- Action taken; and
- Evidence gathered, e.g. samples and photographs.

More information will be required as the situation develops, for example as a part of the monitoring process, a survey of the location of seabirds might be carried out to determine the advisability of using dispersants. Aerial surveillance and monitoring will also form an integral part of the response, for example in the case of a large oil spill where dispersant is being used.

The response strategies available to AOWFL are outlined below:

- Main Strategies (strategies expected to be adopted in the majority of oil spills):
  - Monitor and Evaluate (Section based upon the internationally recognised Bonn Agreement Oil Appearance Code (BAOAC) 2004);
  - Natural dispersion maintain the spill under observation but with no active intervention (Section based on (BAOAC) 2004);
- Alternative Strategies (alternative strategies in the unlikely event of a larger oil spill, that would require the appointment of an accredited Oil Spill Response Contractor):
  - Chemical dispersion (Section based on MMO and Marine Scotland Marine Laboratory (MS-ML) issued guidance on dispersant use (Annex 4 PON1 Guidance, 22nd March 2011));
  - Mechanical containment and recovery (Section based on OSRL (2006) Oil Spill Responders Handbook); and
  - $\circ~$  Onshore clean-up (Section based on OSRL (2006) Oil Spill Responders Handbook).



The appropriate response will depend not only on the potential limitations of each of the possible response options, but also on the type of oil spilled and the environmental sensitivities that are threatened by the spill.

## It should be noted that Tier 2 and 3 spills are beyond the scope of this O&M MPCP. Therefore only the 'main strategies' are presented here. In the unlikely event of a Tier 2 or Tier 3 spill, an Oil Spill Response Contractor will be called upon to provide appropriate response strategies.

## B 1.1 Monitor & Evaluate

Monitor and evaluate is the primary response strategy for oil spills that pose no significant threat to the coastline or sensitive resources, as the normally high energy conditions offshore on the UKCS will naturally break up the oil spill. It is recognised that it is essential to monitor an oil spill until complete dispersion. Where surveillance from a vessel is insufficient, aerial surveillance should be undertaken. This is considered to constitute a Tier 2 or 3 spill and is therefore beyond the scope of this O&M MPCP.

All oil spills must be monitored until they have completely dispersed. During operations, small spills in close proximity to installations can be monitored by using a small vessel.

## B 1.4 Natural Dispersion

If the oil slick does not immediately threaten any sensitivity or resource and prediction methods show that the oil will disperse by itself, then the valid response strategy is to monitor the oil slick until it disperses naturally.

This is the preferred response strategy for spills from the Development. According to the results of the risk assessment presented in Appendix H the most likely oil spills associated with the Development are of a light non-persistent type and of relatively low volume. Therefore, allowing natural dispersion, in conjunction with continued monitoring and evaluation, would be the most appropriate response strategy in most cases.

The future movement and behaviour of the oil should be predicted, as far as possible, using weather forecasts and computer modelling until it has completely dispersed. This would be available through an accredited Oil Spill Response Contractor, or other consultancy with access to oil spill computer modelling software. Oil on the sea surface should be monitored by direct observation.

Natural dispersion relies solely on the various weathering processes and their overall contribution to oil slick removal. Natural dispersion processes are summarised in Table B2 below.



# Table B2 - Fate of spilled oil in the marine environment – natural dispersion processes

Weathering Agent	Description	Rate and contribution to slick removal	DIESEL	Intermediate Fuel Oil (IFO)
Spreading	Oil will tend to spread out on the surface of the water. The rate and degree to which it does will depend upon the viscosity of the oil and the surface tension between the oil and the water. The higher the temperature, the lower the viscosity and the greater the degree and speed of spreading. Under the influence of wind the oil will become unevenly distributed. It will tend to break up into patches or ribbons, thickest in the leading edge and thinnest at the trailing edge.	Rapid cover of large areas.	Very rapid spreading	Rapid spreading
Evaporation	Evaporation will remove the more volatile molecules from the surface of the oil slick into the atmosphere. It will act fastest when there is a large surface area of oil exposed to the air and will increase with temperature. It will be more predominant when the proportion of lighter to heavier molecules in the oil is high and the energy in the sea and atmosphere is high (rough conditions).	Rapid, particularly for lighter oils. It may account for 10 – 75 % of removal of oil from the sea surface depending upon the initial type.	Major means of removal	Initially dominant means of removal
Dissolution	The soluble elements of the oil (the lighter molecules) will preferentially be removed from the slick into the water column and they will subsequently be diluted by dispersion. Aided by high energy in the sea.	Active soon after a spill occurs, but overall it is a relatively minor pathway.	Can be important	Can be important
Dispersion	The oil layer on the surface of the sea is broken into small droplets which then disperse into the water column. The rate at which this occurs and the degree to which it occurs will depend upon the composition of the oil. Aided by high energy in the sea.	An important process for removing oil from the surface and facilitating bio- degradation. Most important for the less viscous oils.	Important	Important
Photolysis	Light energy acting upon oil breaks	Negligible	Important	Important

Weathering Agent	Description	Rate and contribution to slick removal	DIESEL	Intermediate Fuel Oil (IFO)
	chemical bonds in the hydrocarbon chains and allows it to slowly oxidise. Aided by high levels of irradiation.	over the short term in high northern latitudes however important in the long term and lower latitudes.		
Bio- degradation	Biodegradation is the ultimate means of removal of free oil from the environment. Aided by ample nutrient supply, dispersion of oil, moderate temperatures, and high energy environments.	Minor importance in the short term but very important in the long term.	Not important	Important in long term
Drift	Drift of the oil slick is facilitated by wind, waves and surface water currents.	Important in distributing oil and moving it into or out of sensitive areas.	Can be important	Important

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Other qualities to note are:

- Diesel is a low viscosity distillate fuel made from light gas oil. Typically it
  has a density of 0.846 kilograms per litre. It contains a high proportion of
  light ends and so evaporation will play an important part in the removal of
  the oil from the surface of the sea. Spill evaporation rate will depend on
  the volume and rate of spill.
- Oil can be characterised according to its behaviour in the environment if spilled, according to its ITOPF Group.
- Lube and hydraulic oils are refined products. They have no light ends and behave as viscous oil. Evaporation will be limited and spreading relatively slow, however, they are dispersed rapidly by natural wave action.



# APPENDIX C - SPILL RESPONSE PROCEDURES AND NOTIFICATION CHECKLISTS

## C 1.1 Spills Originating from a vessel

Key actions and notifications for the following personnel are summarised in the Checklists below, utilising the colour system outlined below:

Spill Observer (first person sighting the pollution incident)
Vessel Master
Marine Coordinator
Service Leader
Environmental Specialist
O&M Manager



Checklist for SPILL OBSERVER (first person sighting the pollution incident) – Actions & Notifications

Actio	ns below should be completed by the person who observes the spill
	INITIAL ACTIONS
σ	Notify the Vessel Master and provide details of:
	Time of spill;
	Possible source of spill;
	Current spill location;
	Oil / chemical type;
	<ul> <li>Estimation of quantity of oil / chemical spilled; and</li> </ul>
	Any other relevant actions.
0	Contact all personnel in the vicinity of the leak or spill and warn of the potential hazard.
	ONGOING ACTIONS
	If safe to do so, stay in vicinity of the leak or spill and continue observation.
	If safe to do so, take any reasonable action to contain or reduce the leak or spill.



#### Checklist for VESSEL MASTER – Actions & Notifications

	Completion of the actions below are the responsibility of the Vessel Master
	INITIAL ACTIONS
σ	Receive report on spill from Spill Observer and take charge of the situation.
σ	If safe to do so, immediately initiate actions to identify source and stop leakage at source.
σ	Maintain safety of:
	Personnel;
	The installation / vessel;
	Any vessel within 500 metres.
σ	Inform the Marine Coordinator of the spill.
	All marine pollution incidents must be reported as soon as is safely possible to the Coastguard Operations Centre (CGOC) Aberdeen via phone (or via VHF radio) on 0344 382 0723. Where a spill originates from a vessel in a harbour or port, the Vessel Master shall notify the Harbour or Port Authority
	Note that CGOC Aberdeen will pass the POLREP on to the MCA Counter Pollution and Response Branch, who will advise on actions to be taken, and at the same time issue it to other relevant authorities.
σ	Activate the <b>Ship-board Oil Pollution Emergency Plan</b> (SOPEP), or equivalent vessel-specific spill plan.
0	Complete Oil Spill Assessment Form (Appendix D) to ensure the initial assessment of the oil is accurate and all aspects are considered thoroughly.
	Submit completed <b>Marine Pollution Report</b> (POLREP) (template is provided in Appendix E) form to CGOC Aberdeen via email <u>zone3@hmcg.gov.uk</u> . Ensure the POLREP has been received by phone and email.
σ	Initiate a chronological log of events and actions taken – maintain this log until stand down.
	ONGOING ACTIONS
0	Confirm source and estimate quantity of oil / chemical spilled. Classify spill size and determine likely slick movement. Pass information to Marine Coordinator.
	Assess the ongoing nature of the spill and the possible need to mobilise additional resources. Seek advice from an accredited Oil Spill Response Contractor as required on the following:
_	<ul> <li>Overall extent and on-going nature of oil slick;</li> </ul>
	<ul> <li>Direction of movement, especially noting other installations and vessels in the vicinity;</li> </ul>
	<ul> <li>Proximity to environmentally sensitive areas;</li> </ul>
	<ul> <li>Areas possibly in need of urgent clean-up measures;</li> </ul>



	<ul> <li>Need for additional assistance and back-up services; and</li> </ul>
	<ul> <li>Progress and dispersion of slick during clean-up operations.</li> </ul>
	In the event that on site resources are not able to adequately respond to the existing spill or if the existing spill is likely to escalate inform the Marine Coordinator as soon as practicable who will support the mobilisation of additional resources and assist with seeking advice as required.
	If no risk to personnel, request vessel to track oil spill location and take samples and photographs of spilled oil.
	Take steps to reduce or prevent further leakage of the oil/ chemical.
<b>7</b>	In the event that the spill escalates to a Tier 2 or Tier 3 spill, advice will be sought form an accredited Oil Spill Response Contractor who may choose to sample a slick using vessel based or aerial based observations as required.
	CLOSE-OUT ACTIONS
<i>□</i>	<b>CLOSE-OUT ACTIONS</b> Ensure that any waste arising from a spill is managed in accordance with the procedures set out in the AOWFL O&M Offshore Environmental Management Plan (OEMP) and disposed of responsibly.
7	CLOSE-OUT ACTIONS         Ensure that any waste arising from a spill is managed in accordance with the procedures set out in the AOWFL O&M Offshore Environmental Management Plan (OEMP) and disposed of responsibly.         Make an assessment of when to demobilise any response. Commence "stand-down" procedures as follows:
<i>□</i>	CLOSE-OUT ACTIONS         Ensure that any waste arising from a spill is managed in accordance with the procedures set out in the AOWFL O&M Offshore Environmental Management Plan (OEMP) and disposed of responsibly.         Make an assessment of when to demobilise any response. Commence "stand-down" procedures as follows:       • Ensure Local Authority (Aberdeenshire Council), Contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down;
<i>□</i>	CLOSE-OUT ACTIONS         Ensure that any waste arising from a spill is managed in accordance with the procedures set out in the AOWFL O&M Offshore Environmental Management Plan (OEMP) and disposed of responsibly.         Make an assessment of when to demobilise any response. Commence "stand-down" procedures as follows:       Contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down;         Prepare internal incident report, provide incident log and remain accessible to support personnel in compiling their reports.



#### **Checklist for MARINE COORDINATOR - Actions & Notifications**

Completion of the actions below are the responsibility of the Marine Coordinator			
	INITIAL ACTIONS		
	Receive report on spill from Vessel Master.		
	On notification from the Vessel Master, record all details of the incident and all incoming information and conversations, maintaining a chronological log of events, including issue of notifications.		
	Ensure a log keeper is assigned and continues to maintain a chronological log of response procedures, events and conversations.		
0	Make report to Vattenfall (Crisis Incidents and Security (CIS) Team, within 30 minutes, or as soon as it is safe to do so on (+44 203 301 9 301)).		
	Notify the Service Leader of the spill		
0	Maintain contact with the Vessel Master Provide assistance and support to facilitate communications as required.		
σ	Assist the Vessel Master in arranging for photographs and samples to be taken of the slick.		
	ONGOING ACTIONS		
0	Assist the Vessel Master and Primary Responder to reduce or prevent further oil / chemical leakage without endangering the safety of personnel.		
	Liaise with and co-operate with statutory bodies as necessary and communicate relevant information to the Primary Responder, Vessel Master, MCA and all other relevant authorities and Contractors.		
0	Ensure all other installations and vessels in the vicinity have been informed of the spill if deemed necessary.		
	Liaise with the Vessel Master and Primary Responder to ensure that the slick is monitored until complete dispersion.		
	CLOSE-OUT ACTIONS		
σ	Marine Coordinator assist with "stand-down" procedures in liaison with the Vessel Master.		
	Collect copies of all Incident Logs provided by the Vessel Master.		



## Checklist for SERVICE LEADER: - Actions & Notifications

Completion of the actions below is the responsibility of the Service Leader		
INITIAL ACTIONS		
σ	Receive notification of the spill from Marine Coordinator and inform O&M Manager, Environmental Specialist and H&S Specialist of the spill.	
ONGOING ACTIONS		
	Provide ongoing assistance to Marine Coordinator and Vessel Master.	
CLOSE-OUT ACTIONS		
	Assist O&M Manager in investigation, close out and lessons learnt process.	

#### Checklist for O&M MANAGER: - Actions & Notifications

Completion of the actions below is the responsibility of the O&M manager		
INITIAL ACTIONS		
	Receive notification of the spill from Service Leader	
ONGOING ACTIONS		
	Provide ongoing assistance to Service Leader where required.	
CLOSE-OUT ACTIONS		
σ	Initiate the investigation, closure and lessons learned process post incident	



#### Checklist for ENVIRONMENTAL SPECIALIST - Actions & Notifications

Completion of the actions below is the responsibility of the Environmental Specialist		
	INITIAL ACTIONS	
	On notification from the Service Leader, notify the Licensing Authority within 24 hours for serious incidents (and 72 hours for less serious incidents).	
	Ensure appropriate spill notifications have been issued as required by this MPCP. Record times and key details of notifications.	
	Provide advice on environmental sensitivities and assistance to the Marine Coordinator and Primary Responder, if required.	
ONGOING ACTIONS		
σ	Provide advice to the Marine Coordinator, Primary Responder and/or any response cells that are established as required.	
	CLOSE-OUT ACTIONS	
	Remain accessible to support personnel in compiling their reports.	
	Work with the O&M Manager to ensure that a "lessons identified" profile is available quickly so that remedial action and the possible upgrading of procedures can take place (and update/amend this MPCP where necessary).	
	Following the 'lessons learned' process issue close-out note to MS-LOT setting out remedial action and amendments and updates to the MPCP and procedures.	



## C 1.2 Spills Originating from a WTG

Key actions and notifications for the following personnel are summarised in the Checklists below, utilising the colour system outlined below:

Spill Observer (first person sighting the pollution incident)	
Marine Coordinator	
Service Leader	
O&M Manager	
Environmental Specialist	



Checklist for SPILL OBSERVER (first person sighting the pollution incident) - Actions & Notifications

Actions below should be completed by the person who observes the spill		
INITIAL ACTIONS		
	Notify (using the <b>Oil Spill Assessment Form</b> in Appendix E) the Marine Coordinator and provide details of:	
	Time of spill;	
	Possible source of spill;	
	Current spill location;	
	Oil / chemical type;	
	<ul> <li>Estimation of quantity of oil / chemical spilled; and</li> </ul>	
	Any other relevant actions.	
	Contact all personnel in the vicinity of the leak or spill and warn of the potential hazard.	
ONGOING ACTIONS		
σ	If safe to do so, stay in vicinity of the leak or spill and continue observation.	
σ	If safe to do so, take any reasonable action to contain or reduce the leak or spill.	
	Assess the ongoing nature of the spill on the following:	
	<ul> <li>Overall extent and on-going nature of oil slick;</li> </ul>	
	<ul> <li>Direction of movement, especially noting other installations and vessels in the vicinity;</li> </ul>	
	<ul> <li>Proximity to environmentally sensitive areas;</li> </ul>	
	<ul> <li>Areas possibly in need of urgent clean-up measures;</li> </ul>	
	<ul> <li>Need for additional assistance and back-up services; and</li> </ul>	
	<ul> <li>Progress and dispersion of slick during clean-up operations.</li> </ul>	
	In the event that on site resources are not able to adequately respond to the existing spill or if the existing spill is likely to escalate inform the Marine Coordinator as soon as practicable who will support the mobilisation of additional resources and assist with seeking advice as required.	



#### Checklist for Marine Coordinator - Actions & Notifications

Completion of the actions below are the responsibility of the Marine Coordinator			
	INITIAL ACTIONS		
σ	Receive report on spill from Spill Observer and take charge of the situation.		
0	If safe to do so, immediately initiate actions to assist with identifying the source and stop leakage at source.		
	Maintain safety of: <ul> <li>Personnel;</li> <li>The installation;</li> <li>Any vessel within 500 metres.</li> </ul>		
σ	Report the spill to the Service Leader		
0	As soon as is safely possible to do so, report the pollution incident to the Coastguard Operations Centre (CGOC) Aberdeen via phone (or via VHF radio) on 0344 382 0723.		
	Activate the MPCP.		
σ	Submit completed <b>Marine Pollution Report</b> POLREP form (Appendix E) to CGOC Aberdeen via email ( <u>zone3@hmcg.gov.uk</u> ) Ensure the POLREP has been received by phone and email. Note that CGOC Aberdeen will pass the POLREP on to the MCA Counter Pollution and		
	other relevant authorities.		
σ	On notification from the Spill Observer, record all details of the incident and all incoming information and conversations, maintaining a chronological log of events, including issue of notifications.		
σ	Make report to Vattenfall (Crisis Incidents and Security (CIS) Team on (+44 203 301 9 301) within 30 minutes or as soon as it is safe to do so.		
	Maintain contact with the Spill Observer. Ensure the slick is being observed, and determine likely slick movement (towards other installations/environmentally sensitive areas/coastal regions).		
σ	Assist the Spill Observer in arranging for photographs and samples to be taken of the slick.		
	ONGOING ACTIONS		
σ	Work with the Spill Observer and to reduce or prevent further oil / chemical leakage without endangering the safety of personnel.		
0	<ul> <li>Assess the ongoing nature of the spill and the possible need to mobilise additional resources.</li> <li>Seek advice from an accredited Oil Spill Response Contractor as required on the following:</li> <li>Overall extent and on-going nature of oil slick:</li> </ul>		

	<ul> <li>Direction of movement, especially noting other installations and vessels in the vicinity;</li> </ul>	
	<ul> <li>Proximity to environmentally sensitive areas;</li> </ul>	
	<ul> <li>Areas possibly in need of urgent clean-up measures;</li> </ul>	
	<ul> <li>Need for additional assistance and back-up services;</li> </ul>	
	<ul> <li>Progress and dispersion of slick during clean-up operations.</li> </ul>	
	Ensure a log keeper is assigned and continues to maintain a chronological log of response procedures, events and conversations.	
	Liaise with and co-operate with statutory bodies as necessary in determining and managing spill response.	
	Ensure all other installations and vessels in the vicinity have been informed of the spill if deemed necessary.	
	Pass updates to CGOC Aberdeen.	
0	If no risk to personnel or installation, request vessel to track oil spill location and ensure samples are taken of spilled oil by trained personnel. Ensure spill is tracked until complete dispersion.	
CLOSE-OUT ACTIONS		
	Make an assessment of when to demobilise any response. Commence "stand-down" procedures in liaison with the Marine Coordinator as follows:	
<b>7</b>	<ul> <li>Ensure Local Authority (Aberdeenshire Council), Contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down;</li> </ul>	
	<ul> <li>Prepare internal incident report and remain accessible to support personnel in compiling their reports.</li> </ul>	
	Collect copies of all Incident Logs available.	
0	Ensure that any waste arising from a spill is managed in accordance with the procedures set out in the AOWFL Offshore Environmental Management Plan (OEMP) and disposed of responsibly.	



#### Checklist for Service Leader : - Actions & Notifications

Completion of the actions below is the responsibility of the Service Leader		
	Receive notification of the spill from Marine Coordinator and instruct notification to CGOC by Marine Coordinator.	
	Inform O&M manager, Environmental Specialist and H&S Specialist of the spill	
ONGOING ACTIONS		
	Provide ongoing assistance to Marine Coordinator and Vessel Master.	
CLOSE-OUT ACTIONS		
	Assist O&M Manager in investigation, close out and lessons learnt process.	

## Checklist for O&M Manager: - Actions & Notifications

Completion of the actions below is the responsibility of the O&M manager		
INITIAL ACTIONS		
σ	Receive notification of the spill from Service Leader	
ONGOING ACTIONS		
Ø	Provide ongoing assistance to Service Leader where required.	
CLOSE-OUT ACTIONS		
σ	Initiate the investigation, closure and lessons learned process post incident	



#### **Checklist for Environmental Specialist - Actions & Notifications**

Completion of the actions below is the responsibility of the Environmental Specialist		
	INITIAL ACTIONS	
	On notification from the Service Leader, notify the Licensing Authority within 24 hours for serious incidents (and 72 hours for less serious incidents).	
٦	Ensure appropriate spill notifications have been issued as required by this MPCP. Record times and key details of notifications.	
	Provide advice on environmental sensitivities and assistance to the Marine Coordinator and Primary Responder, if required.	
ONGOING ACTIONS		
	Provide advice to the Marine Coordinator as required.	
	CLOSE-OUT ACTIONS	
Δ	Remain accessible to support personnel in compiling their reports.	
	Work with the O&M Manager to ensure that a "lessons identified" profile is available quickly so that remedial action and the possible upgrading of procedures can take place (and update/amend this MPCP where necessary).	
	Following the 'lessons learned' process issue close-out note to MS-LOT setting out remedial action and amendments and updates to the MPCP and procedures.	



# **APPENDIX D - INCIDENT RESPONSE FORMS**

## D 1.1 Oil Spill Assessment Form

To be completed to by the Spill Observer or Vessel Master. This form ensures that the initial assessment of the oil spill is accurate and all aspects likely to affect the spill classification such as quantity, oil type and likely fate of the spilled oil, are considered thoroughly.

#### OIL SPILL ASSESSMENT FORM

This form is designed to assist those personnel who have the primary responsibility of assessing the oil spill incident. These personnel are likely to be:

- Spill Observer; or;
- The Vessel Master.

STEP	GUIDANCE
Determine Essential Details	Location of pollution incident;
	Source of spill;
	Oil type;
	Extent of oil spill;
	Time of incident;
	Potential hazardous circumstances;
	Any other relevant information (particularly: is spill contained or ongoing?).
Assess Safety Hazards	Until otherwise established, assume oil spill is giving off potentially dangerous Volatile Organic Compounds (VOCs) (i.e. gas or hydrocarbon vapours).
	ELIMINATE IGNITION SOURCES
	Approach Oil Spill from upwind to reduce effects of vapours.
	APPROACH ONLY IF SAFE TO DO SO!
Determine Oil Spill Source	If source unknown, investigate with care.
	Instigate actions to stop spillage at source.
	IF SAFE TO DO SO!
Estimate quantity of Oil released if exact amount unknown	Appendix B
Predict oil fate; determine direction and speed of oil movement in addition to weathering characteristics	Appendix B



Assess prevailing and if possible future weather conditions	Determine:
	<ul> <li>Wind speed and direction;</li> <li>State of tide and current speed; and</li> <li>Sea state</li> </ul>

# D 1.2 Marine Pollution Incident Report- CG77 POLREP

An incident report form, **CG77 POLREP**, is to be completed by either the Vessel Master or Marine Coordinator as detailed in Section 5 in the event of a spill and issued to CGOC Aberdeen:

VATTENFALL

CGOC Aberdeen	Tel: 0344 382 0723	zone3@hmcg.gov.uk
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The Vessel Master or Marine Coordinator should not delay sending a report. If certain information is lacking, this could be provided at a later date.

Where a spill arises from a vessel or vessel related activity the Vessel Master will provide updates to CGOC and to the Marine Coordinator throughout any pollution incident verbally and/or via updates to the POLREP in line with the SOPEP. Where a spill arises from a WTG the Marine Coordinator will provide updates to the CGOC verbally and through submission of a POLREP.

#### **Reporting Pollution**

#### CG77 - POLREP

#### INITIAL INCIDENT REPORT

A. Classification: -	
B. Date/Time/Observer: -	
C. Position and Extent of Pollution: -	
D. Tide: -	
Wind: -	
E. Weather: -	
F. Characteristics of Pollution: -	
G. Source and Cause of Pollution: -	
H. Details of Vessels in area: -	
I. Not Used	
J. Any Photographs or Samples: -	
K. Remedial Action: -	
L. Forecast of oil movement: -	
M. Names of others informed: -	
N. Other relevant information: -	

Guidance is given below on the type of information to be recorded in a CG77 POLREP.


A. Classification: - Select – Doubtful, Probable, Confirmed

**B. Date/Time/Observer**: - Enter date/time of obs. – state UTC or local time / Enter name or title of observer

**C. Position and Extent of Pollution**: - by latitude and longitude if possible, state range and bearing from some prominent landmark and estimated amount of pollution, e.g. size of polluted area; number of tonnes of spilled oil; or number of containers, drums etc. lost. When appropriate, give position of observer relative to pollution

D. Tide: - Speed/Direction Wind: - Speed/Direction

E. Weather: - Conditions and Sea State

**F. Characteristics of Pollution**: - give type of pollution, e.g. oil crude or otherwise; packaged or bulk chemicals; garbage. For chemicals, give proper name or United Nations Number, if known. For all, give appearance e.g. liquid; floating solid; liquid oil; semi-liquid sludge; tarry lumps; weathered oil; discoloration of sea; visible vapour etc.

**G. Source and Cause of Pollution**: - from vessels or other undertaking. If from a vessel, say whether as a result of apparent deliberate discharge or a casualty. If the latter, give a brief description. Where possible, give name, type, size, nationality and Port of Registry of polluting vessel. If vessel is proceeding on its way, give course, speed and destination, if known.

**H. Details of Vessels in area**: - to be given if the polluter cannot be identified and the spill is considered to be of recent origin.

I. Not Used

J. Any Photographs or Samples: - Give details of any photographs or samples taken.

K. Remedial Action: - Give details of any actions taken, or intended, to deal with spillage.

L. Forecast: - Likely effects of pollution – e.g. arrival on shore and estimated timings.

**M. Names**: - of others informed apart from addressees to this message.

**N.** Other relevant information: - e.g. Names of other witnesses or references to other instances of pollution which may point to a source.



# D 1.3 Oil Spill Incident Log Sheet

To be completed by all key personnel involved in the oil spill response (see Section 5, and Appendix C), including the Marine Coordinator and Vessel Master. As a minimum, key decisions and events, communications, and deployment of resources should be recorded.

Name:	
Team:	
Role:	
Location:	
Date / Time	Communication / Action Taken / Notes



# D 1.4 Incident Briefing Checklist

To be completed by the Marine Coordinator when briefing other members of staff.

	BRIEFING CHECKLIST				
This checklist is designed to facilitate an effective response team briefing and should be used by the <b>Marine Coordinator</b> when briefing other members of staff.					
STEP	NOTES				
Specify Safety Hazards					
Extent of Problem					
Size of spillage, type of oil, source					
Slick Trajectory					
Tide and Wind conditions					
Response Actions					
Strategies to consider					
Resource Mobilisation					
Equipment and personnel					
Planning Cycle					
Meetings schedule					
Additional Information					
Communications, Waste Disposal, Weather Forecast					



# **APPENDIX E - CONTACTS DIRECTORY**

Directory details to be confirmed and inserted prior to the Commencement of the Development. The Contacts Directory will be held and managed by the Marine Coordinator, who will also be responsible for ensuring it is fully up to date at all times.

Organisation	Contact Name	Telephone (office hours)	Fax	24 hr. Telephone	Mobile / Pager / Email	
AOWFL						
Marine Coordinator (Esbjerg)	-	+45 27 87 50 50	-	+45 27 87 50 00 (emergency only)	<u>vsc.mcc@va</u> <u>ttenfall.com</u>	
O&M Manger	Alexandra Richards	+44 (0)754319925 8	-	-	+44 (0)75431992 58	
Service Leader	Joshua Ro- driguez or, Steven Wares	+44 7500890564 +44 7980954172	-	-	joshua.ro- dri- guez@vat- tenfall.com steven.war es@vattenf all.com	
H&S Specialist	Henrik Hedegaard Madsen	+45 27875467	-	-	henrik.hedeg aardmadsen @vattenfall.c om	
Vattenfall 24 HR Emergency Reporting Line	-	+45 27 87 50 50	-	+45 27 87 50 00 (emergency only)	<u>vsc.mcc@va</u> <u>ttenfall.com</u>	
Environmental Specialist	Emma Toogood	M +44 (0)7970 884 627	-	-	emma.toogo od@vattenfa II.com	
Contractors				1		
MVOW	Andrew Wilson	+44 7989 223952	-	-	anils@mhiv estasoffsho re.com	
Contractor Oil Spill Response Contractors						



Organisation	Contact Name	Telephone (office hours)	Fax	24 hr. Telephone	Mobile / Pager / Email
Appointment of Oil S	Spill Response Co	ontractor during C	&M phase TBC c	lependant on sco	pe of works
Coastguard Centre	S				
CGOC Aberdeen	Duty Officer	0344 382 0723	-	0344 382 0723	<u>zone3@hm</u> <u>cg.gov.uk</u>
Marine Scotland					
Marine Scotland Licensing and Operations Team	Case Officer (Nikoleta Papanastasou li)	+44 (0)131244388 6	-	-	nikoleta.p apanastas ouli@gov. scot MS.MarineR enewables @gov.scot
Marine Scotland Marine Laboratory	Duty Officer	07770733423 (mobile)	01224295511	07770733423 (mobile)	<u>spillrespon</u> <u>se@marlab</u> .ac.uk
Department for Bu	siness, Energy &	& Industrial Strat	egy		
Department for Business, Energy & Industrial Strategy	Duty Officer	01224254058	-	01392886160	-
Ports					
Aberdeen Harbour	Harbour Master	01224597000	01224571507	01224597000	-
Peterhead Harbour	Harbour Master	01779483600	01779475715	-	john.forma n@peterhe adport.co.u <u>k</u>
Environmental Age	encies and Local	Authorities	1	1	1
SEPA	Pollution hotline	-	-	0800807060	-
	Aberdeen Office	01224266600	01224896657	-	-
NatureScot (previously known as SNH)	Duty Officer	0131 316 2610	-	0131 316 2610 (transferred to Duty Officer out of hours	SNH_MARI NE_POLLU TION@nat ure.scot
Aberdeenshire	Grampian	01224633030	-	-	admin@ge



Organisation	Contact Name	Telephone (office hours)	Fax	24 hr. Telephone	Mobile / Pager / Email		
Council	Emergency Planning Unit				<u>pu.sol.co.u</u> <u>k</u>		
Other Contacts (for	Other Contacts (for possible information and advice)						
International Tanker Owners Pollution Federation (ITOPF)	Main	02075666999	-	07623984606	-		
RSPB	East Scotland Regional Office, Aberdeen	01224624824	-	-	-		
Whale and Dolphin Conservation	Fiona Read	-	-	-	fiona.read @whales.o rg		



# APPENDIX F - LEGAL FRAMEWORK AND GOVERNMENT RESPONSIBILITIES

# F 1.1 Government Responsibilities

A number of UK government organisations have responsibilities for oil spill prevention, planning and response. Figure G1 summarises the key government bodies and their offshore jurisdiction.

### Figure G1 - Government organisations and corresponding offshore jurisdiction

Government	Polo		shore Juris	sdiction (r	autical mi	les)
Organisation	Role	1	3	6	12	200
Department for Transport (DfT) Maritime & Cosetquard	<ul> <li>Responsible for:</li> <li>Government response to an oil spill anywhere around the UK coast;</li> <li>Providing assistance to local councils responsible for shoreline clean-up (discharges this responsibility through MCA).</li> </ul>					
Agency (MCA) – HM Coastguard (HMCG)	Responsible for the co-ordination of all civil maritime search and rescue operations in the UK. In the event of a spill, the HMCG will be contacted in the first instance and will then liaise with the MCA department and others as necessary.					
MCA - Counter Pollution & Response Branch (CPRB)	Responsible for the National Contingency Plan (NCP) and oversees the actions of those responsible for salvage and clean-up operations.					
Marine Scotland (MS) - Marine and Fisheries	MS are responsible for approving the use of dispersants or other oil treatment products in UK waters. MS has a wider responsibility for protecting fisheries and the marine environment, with assistance from the MS – Marine Laboratory (ML) and the Centre for Environment, Fisheries and Aquaculture Science (Cefas). Local fisheries concerns are handled by the MS Fish Health Inspectorate (FHI).					
Joint Nature Conservation Committee (JNCC) Scottish Natural Heritage (SNH)	Government's statutory advisors on wildlife affairs and nature conservation. The organisation responsible for providing advice on the environmental sensitivities during a pollution incident. They are the official agencies to be consulted by the local authorities and operators at the planning stage and prior to any oil spill clean-up operation.					
Scottish Environment Protection Agency (SEPA)	Responsible for water quality up to three nautical miles offshore and fisheries up to six nautical miles offshore.				8.	
Local Authority (LA)	Responsible for clean-up of beached oil in their authorities. The area pollution officer is responsible for drawing up a local contingency plan for inshore and onshore clearance and for co-ordinating a local response for oil spill clean-up operations. They would require the mobilisation of a Shoreline Response Centre (SRC) that both the MCA and operator representatives would attend.					



# F 1.2 Interfaces with National Contingency Plan, Bonn Agreement and Others

Whilst the previous section outlines UK government organisation responsibilities for oil spill prevention, this section outlines the legal framework within which the responses must be coordinated including the National Contingency Plan and Bonn Agreement.

F 1.2.1 National Contingency Plan (NCP)

## Introduction

The NCP for Marine Pollution from Shipping and Offshore Installations has been developed by the UK Government and sets out the arrangements at a national level for dealing with spillage of oil or other hazardous materials at sea in UK waters. The NCP is designed for incidents of national significance which, in most cases, would be classified as large Tier 2 or Tier 3 pollution incidents. The plan involves a great number of organisations from central and local Government and private industry.

## Activation of the NCP

Note that the activation of the NCP is not the responsibility of an Offshore Operator. Activation of the NCP is the responsibility of the MCA. It should also be noted that the activation of the NCP in response to an oil spill from the Development is extremely unlikely, and therefore this section is mainly provided for information purposes.

Further details on the MCA NCP can be found online at:

<https://www.gov.uk/government/publications/national-contingency-planncp#history>.

## F 1.2.2 The Bonn Agreement

The Bonn Agreement, which entered into force in1983 (and was subsequently amended in 1989, 1994 and 2001), is the mechanism by which the North Sea States and the European Community (the Contracting Parties), work together to:

- Help each other in combating pollution in the North Sea Area from maritime disasters and chronic pollution from ships and offshore installations;
- Carry out surveillance as an aid to detecting and combating pollution at sea.

The Bonn Agreement is the major counter-pollution interstate agreement for northern Europe. The North Sea States party to the Bonn Agreement are:

- Belgium;
- Denmark;
- France;
- Germany;
- Ireland;



- The Netherlands;
- Norway;
- Spain;
- Sweden;
- United Kingdom of Great Britain and Northern Ireland.

The Bonn Agreement sets out command and control procedures for pollution incidents likely to affect participating parties, as well as channels of communication and resources available. It sets out the mechanism by which North Sea States, and the European Community, will work together to combat pollution in the North Sea area from maritime disasters, chronic pollution from ships and offshore installations and recommends the command structure and operational co-ordination between the parties. The Agreement is largely oriented towards major spills; however, it is not confined to such events and will apply as necessary to any spills within the Bonn regions, which are of sufficient severity to warrant joint action.

In the event of an oil spill entering any waters of Member States other than those of the origination state, it may be necessary to implement the response strategies agreed with participating parties under the Bonn Agreement. The Bonn Agreement becomes operational when agreement to the request for its implementation is reached. Responsibility for implementing joint action rests with the Action Co-ordinating Authority (ACA) of the State on whose side of the median line a spill originated.

The experience gained through the Bonn Agreement has been codified in the Bonn Agreement Counter-Pollution Manual. This sets out:

- Agreed General Strategy;
- Specific Policies agreed on many issues;
- Agreed approaches on Response operations;
- Arrangements for joint Exercises;
- Agreed arrangements for Reporting;
- Agreed approaches on Surveillance of oil spills.

The Bonn Agreement Counter Pollution Manual is available online at: < http://www.bonnagreement.org/manuals >.

### F 1.2.3 Industry Plans

The EOWDC MPCP interfaces with the following industry standard plans, as appropriate for the planned operations as outlined in Section 7.

The interaction of these plans in relation to potential oil spill size is shown in Table F1.



#### Table F1 Interaction of contingency plans

INCREASING SIZE OF SPILL AND POTENTIAL CONSEQUENCES						
Tier 1 Spill	Tier 2 Spill	Tier 3 Spill				
EOWDC MPCP in force for the li	fe of the Development.*					
Shipboard Oil Pollution Emergency Plan (SOPEP) (or equivalent vessel-specific spill plan) carried by each contracted vessel and in force prior to and following the time the vessel is deployed on location. EOWDC MPCP is in force for the duration of operations on location.						
Port and Harbour OSCPs.						
Kincardine and Hywind offshore	wind farm OSCP					
Local Authorities Plan (in the event that an oil spill reaches 1 mile from the shore).						
	National Contingency Plan (NCP) offshore oil spill incidents and Op	) provides for the monitoring of all perator's response actions.				

\*Tier 2 and Tier 3 spills are outside the scope of this O&M MPCP. The O&M MPCP does however make reference to actions required in the unlikely event of a spill exceeding Tier 1, e.g. involvement of an Oill Spill Response Contractor.



# APPENDIX G - COMPLIANCE WITH ES MITIGATION MEASURES

Table G1 presents the commitments made by AOWFL in the ES and associated SEIS to mitigation measures relevant to this O&M MPCP.

Source and Reference	Details of Commitment	Implementation	
ES – Shipping and Navigation	Compliance with MCA's Marine Guidance Notice (MGN) 371 including Annex 5 - Annex 5 specifies "Standards and procedures for generator shutdown and other operational requirements in the event of a search and rescue, counter pollution or salvage incident in or around an OREI."	O&M MPCP Section 7.1.1 (Note that MGN371 has now been superseded by MGN543)	
ES- Scoping Opinion	Adherence to MARPOL regulations which set out requirements to establish Pollution Action Plans to control pollution incidents.	O&M MPCP Appendix A.	
ES - Scoping Opinion	Adherence to the required legislation for the use of paints and biocides.	O&M MPCP Appendix A.	
ES – Marine Ecology Technical Report	Adherence to regulatory operational standards such as MARPOL 73/78, the UK Merchant Shipping (prevention of pollution) Regulations 1983 and the Merchant Shipping (Prevention of Pollution by Garbage) Regulations 1988, UK Offshore Chemical Regulations 2001 will ensure that such a potential release is minimised.	O&M MPCP Appendix A.	

Table (	31 - ES and	d SEIS Po	llution-related	Mitigation	relevant to	this	O&M MPCP
Iable	SI = LS and			<i>i wiiu</i> yauoii		uns	



# APPENDIX H - OIL AND CHEMICAL POLLUTION SOURCES AND RISK ASSESSMENT

# H 1.1 Introduction

This section identifies the type and size of oil and chemical spill that the EOWDC spill response arrangements will need to be able to address. It considers the potential sources and likelihood of spills that could occur from typical operations, gives an overview of the potential 'operational' and 'worst case' scenarios, and the prevention and control measures proposed by AOWFL to minimise or eliminate spill risks.

The severity of effects from a spill are dependent on a wide range of factors, including:

- The volume of oil or chemical spilled;
- The physical and chemical nature of the product;
- The location of the spill and proximity of shoreline or other sensitivities;
- The weather and sea state conditions during and following the spill; and
- Hydrographic conditions.

Given this variety of factors, accurate predictions of impacts before a spill are difficult to make. Rapid access to information on the environmental conditions and features is essential in spill response.

For offshore operations, oil spills often pose the most serious environmental risk. Chemical spills, although they can have localised highly toxic effects and pose particular risk to personnel, are generally lower risk, as inventories of stored chemicals are often much smaller in volume than those of hydrocarbons. In addition, chemicals commonly exhibit solubility in water and hence are diluted rapidly on contact with the sea in the event of a spill. Oil and other liquid hydrocarbons exhibit no such solubility on contact with water – the majority initially float on the water's surface, though may over time sink beneath the surface, and can persist in the marine environment for long periods of time, depending on the type of hydrocarbon released. For these reasons, hydrocarbon spills are considered in more detail than chemical spills in the sections below.

# H 1.2 Spill Scenarios, Prevention and Control Measures

Potential spill scenarios are dictated by the hydrocarbon and chemical inventories on the vessels and offshore installations. In practice, due to precautions such as training, operating procedures and engineered solutions, the majority of the spills that may occur are likely to be small.

A brief risk assessment of potential spill scenarios and proposed mitigation measures to minimise or eliminate the risks was carried out for the Development (construction and operational phase as appropriate)operational phase, and is presented in Table HH1. The risk



assessment has been reviewed for the O&M phase to ensure that the worst case spill scenario is assessed.

For general oil spill response, it is common to divide levels of response into three tiers, according to the severity of the spill and the resources required to combat it. This response concept can also be applied to certain chemical spills. The three tiers are commonly defined as follows (Figure):

- Tier 1 response is that which is immediately available on site, geared for the most frequently anticipated spill;
- Tier 2 response is for less frequently anticipated spills of larger size and for which external resources on a regional level will be required to assist in monitoring and clean-up; and
- Tier 3 response is in place for the very rarely anticipated spill of major proportions and which will possibly require national and international resources to assist in protecting vulnerable areas and in the clean-up.





The conventional view of a Tier 3 scenario is one involving an exceptionally large volume of spilled oil, for example from a major ship-sourced accident, an oil well blowout, or other such rare but highly significant event. However, a Tier 3 response may also be required for more modest volumes of oil or chemicals, perhaps where Tier 2 arrangements may be largely absent or overwhelmed, highly sensitive areas threatened, or highly-specialised strategies being required that are not available locally.

The EOWDC-specific risk assessment in Table H shows that small operational type spills (e.g., Tier 1 category) are the most likely. However, the risk assessment cannot predict with certainty the Tier level outcome of any spill, and under a worst case spill scenario, it is possible (although considered highly unlikely) that a Tier 2 or Tier 3 response could be required.



The main source of hydrocarbons associated with the Development will be Marine Gas Oil (MGO) or Intermediate Fuel Oil (IFO) used to fuel O&M vessels. The quantities of MGO and IFO will be limited to the bunkering capabilities of the vessels. The potential worst case spill scenario associated with the Development would be a complete loss of fuel inventory from two large vessels as a result of collision, or where a passing vessel collides with a wind farm vessel or structure.

Once spilled in the marine environment, oil immediately begins to undergo weathering, a term used to describe many natural, physical, chemical and biological changes. The changes that the oil undergoes will often influence the effectiveness of response options. Prevailing meteorological and oceanographic conditions, as well as the type of oil spilled, will determine its ultimate fate.

The changes that chemicals undergo once spilled are highly variable depending on the type of chemical and are summarised in Sections 5.



Table H 1	Potential S	pill Scenarios a	nd Control Measure	s for the Development
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Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
Hydrocarbons Marine Gas Oil (MGO) (Diesel)	Vessel refuelling Loss of fuel during vessel to vessel refuelling at sea or refuelling at port.	Refuelling at sea is not anticipated given the proximity of the EOWDC to Aberdeen with larger vessels undertaking regular transits and should be bunkered with deck equipment fuelled in port before transit to the Development.	Very low	Tier 2
	Equipment refuelling Loss of fuel during refuelling of equipment (on vessel or on structure).	Although it is not expected to be required, should ship transfer operations occur then compliance with conditions related to vessel refuelling set out in Merchant Shipping Notice (MSN) 1829 "Ship to Ship Transfer Regulations 2010/2012". Bunkering operations shall be visually	Very low	Tier 1
		monitored both within the machinery space and also on deck at the hose connection point. These persons shall not have any other duties allocated during this period of time. At least two appropriate communication methods shall be available and an emergency stop or emergency stop alarm to shore or other vessel shall be available.		
		Vessels are to be fitted with save-alls and / or oil recirculation / overflow sys- tems. Vessels under 400 GT may not necessarily be fitted with such facilities and should have suitable oil spill equip- ment to hand.		
		Personnel shall be trained in spill pre- vention awareness and in the use of spill kits (See Section 6.4).		
		Spill kits shall be readily available for mopping up any minor spills.		
		Regular inspection and maintenance of equipment.		
		The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc., special oil gutter ways etc. will be regularly inspected and drained or cleaned.		
		Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an		



Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
		early stage and rectified.		
	Vessel to vessel collision Loss of fuel from collision between two vessels.	All vessels will comply with the measures set out in the Navigational Safety Plan (NSP) (ABE-ENV-QB-0008) (including compliance with all international maritime rules) to minimise	Very low	Tier 2 (possible but unlikely Tier 3)
	Vessel to structure allision Loss of fuel from allision between vessel and structure (e.g., WTG).	vessel to structure allision.	Very low	Tier 2 (possible but unlikely Tier 3)
	Vessel stranding/ grounding Loss of fuel due to vessel stranding/ grounding.	All vessels will comply with the measures set out in the Navigational Safety Plan (NSP) (ABE-ENV-QB-0008) (including compliance with all international maritime rules) to minimise the risk of vessel stranding / grounding.	Very low	Tier 2 (possible but unlikely Tier 3)
	Failure of plant or equipment Release of fuel due to failure of plant or equipment.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be operated by adequately trained and competent personnel. All portable/ temporary onshore storage tanks and/or areas shall be bunded to at least 110% of the total oil storage inventory volume. The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc., special oil gutter ways etc. will be regularly inspected and drained or cleaned. Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.	Low	Tier 1
	Spillage during use of equipment Small spills during equipment operation. (e.g turbine nacelle)	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness and in the use of spill kits (See Section 6.4).	Low	Tier 1



Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
		Spill kits shall be readily available for mopping up any minor spills. The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc., special oil gutter ways etc. will be regularly inspected and drained or cleaned. Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.		
Lubricating Oil	Incident Loss of lubricating oil from collision between two vessels, or allision between vessel and structure, or stranding/ grounding of vessel.	All vessels will comply with the measures set out in the Navigational Safety Plan (NSP) (ABE-ENV-QB-0008) (including compliance with all international maritime rules) to minimise the risk of vessel to vessel collision, vessel to structure allision and vessel stranding / grounding.	Very low	Tier 2
	Leakage within WTGs Leakage of lubricating gear oil or grease within nacelle.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. WTG sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Gear oil seals shall be routinely checked during planned maintenance programmes.	Low	Tier 1
	Spillage during use of equipment Small spills during equipment operation.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness and in the use of spill kits (See Section 6.4). Spill kits shall be readily available for mopping up any minor spills. Fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.	Low	Tier 1
	Failure of plant or equipment Release of lubricating oil due	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be	Low	Tier 1



Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
	to failure of plant or equipment.	operated by adequately trained and competent personnel. All portable/ temporary storage tanks and/or areas shall be bunded to at least 110 % of the total oil storage inventory volume.		
Hydraulic Oil	Incident Loss of hydraulic oil from collision between two vessels, or collision between vessel and structure, or stranding/groundig of vessel.	All vessels will comply with the measures set out in the Navigational Safety Plan (NSP) (ABE-ENV-QB-0008) to prevent vessel to vessel collision, vessel to structure allisions and vessel stranding / grounding.	Very low	Tier 1
	Leakage within WTGs Leakage of lubricating gear oil or grease within nacelle.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. WTG sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Oil seals shall be routinely checked during planned maintenance programmes.	Low	Tier 1
	Failure of plant or equipment Release of hydraulic oil due to failure of plant or equipment, e.g., hydraulic hoses.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be operated by adequately trained and competent personnel. All portable/ temporary storage tanks and/or areas shall be bunded to at least 110 % of the total oil storage inventory volume.	Low	Tier 1
	Spillage during use of equipment Small spills during operation.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness, and in the use of spill kits (See Section 6.4). Spill kits shall be readily available for mopping up any minor spills. Fittings will be inspected regularly to ensure that leaks are detected at an	Low	Tier 1



Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
		early stage and rectified.		
Transformer Oil	Leakage of transformer oil within WTG tower.	The WTG tower transformer has its own bund to collect transformer oil in the unlikely event of a leak.	Low	Tier 1
Chemicals	Incident Loss of chemical load from vessel collision/allision, or stranding/groundig of vessel.	All vessels will comply with the measures set out in the Navigational Safety Plan (NSP) (LF000005-PLN-128) to prevent vessel to vessel collision, vessel to structure allisions and vessel stranding / grounding. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended) and The Offshore Chemicals (Amendment) Regulations 2011	Very low	Tier 1
	Leakage within WTG Leakage of coolant or transformer fluid within nacelle and/or tower.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. WTG sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect liquid in the unlikely event of a leak. Equipment including hoses, pipes and seals shall be routinely checked during planned maintenance programmes. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended). The WTG tower transformer has its own bund to collect liquids in the unlikely event of a leak.	Low	Tier 1
	Spillage during use Spillage of paints, paint thinners, solvents, cleaning fluids etc during use.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in the correct handling and use of chemicals (See Section 6.4). Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. All hazardous substances shall have a safety data sheet (SDS) which is	Low	Tier 1



Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
		intended to provide procedures for handling or working with that substance in a safe manner. The handling and use of chemicals and hazardous substances shall be in compliance with the information on the SDS.		
		COSHH assessments should be conducted for Development specific hazardous substances.		
		Segregated storage facilities will be used to control the separation of hazardous substances.		
		Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).		



# H 1.3 Vessel to Vessel refuelling

The EOWDC Marine Licence condition which specifies the requirement for a Marine Pollution Contingency Plan (Condition 3.1.11) states that:

practices used to refuel vessels at sea must conform to industry standards and to relevant legislation.

This section includes additional detail to that presented in H1 above and is provided to clearly address the requirements of this Marine Licence condition, noting that it is considered highly unlikely that vessel to vessel refuelling at sea will occur given the close proximity of several east coast ports.

Merchant Shipping Notice (MSN) 1829 "Ship to Ship Transfer Regulations 2010/2012" (MCA, 2012) sets out detailed requirements regarding Ship to Ship Transfers of a cargo consisting wholly or mainly of oil. The Notice is given statutory force by the Merchant Shipping (Ship to Ship Transfers) Regulations 2010 (as amended) and should be read in conjunction with those Regulations, which specify in detail what can and cannot be transferred and the penalties for any offences that are committed.

Ship to Ship transfers outside of port authority areas are generally prohibited within the UK territorial sea. An exemption is provided for vessels to refuel, or be refuelled by daughter-craft, so as not to impair operationally necessary refuelling. It is anticipated that Ship to Ship transfers will not be necessary during the O&M of the Development beyond 'operationally necessary' (see Table H) refuelling of vessels.

Note that these regulations only cover transfers between vessels, they do not regulate transfers from a vessel to an Offshore Renewable Energy Installation (OREI). Transfers of fuel from vessels to such installations (such as may be required for the refuelling of temporary diesel generators on the foundations) should be carried out with due regard to crew and vessel safety and with appropriate environmental safeguards (see Table H for potential spill scenarios and control measures for the Development).

Table H2 below provides an extract from MSN 1829 as relevant to ship to ship refuelling arrangements.

### Table H 2 MSN 1829: Mother-craft/daughter-craft refuelling arrangements

3. Mother-craft/daughter-craft refuelling arrangements

3.1 The regulations provide a specific exemption for vessels to refuel, or be refuelled by daughtercraft (e.g.: tenders, rescue boats, safety boats) so as not to impair local, operationally necessary refuelling where returning to shore is not practicable.

3.2 Examples of 'operationally necessary' refuelling include, but are not limited to, the fuelling of jack ups, platforms and other temporary installations as well as vessels with extremely restricted capability



to leave station to take on fuel such as dredgers, workboats operating offshore from mother-craft and accommodation vessels.

3.3 Transfers of fuel to and from daughter-craft should be carried out with due regard to crew and vessel safety and with appropriate environmental safeguards.

3.4 Particular care should be taken to ensure that appropriate training has been provided to those carrying out the transfer and that equipment is maintained correctly on both the supplying and receiving craft.

# H1.4 Use of Chemicals

This section presents additional detail to that presented in Table H above and is provided to clearly address the requirements of the relevant Marine Licence conditions.

## List of Notified chemicals

Condition 3.1.6 of the Marine Licence states;

'The Licensee must ensure that all chemicals which are to be utilised in the Works have been approved in writing by the Licensing Authority prior to use. All chemicals utilised in the Works must be selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002, unless approved in writing by the Licensing Authority.

The List of Notified Chemicals is a product of the Offshore Chemical Notification Scheme (OCNS) which manages chemical use and discharge by the UK and Netherlands offshore petroleum industries, but which is also applied to the offshore renewables industry where relevant. The scheme is regulated in the UK by the Department for Business Energy and Industrial Strategy (BEIS) using scientific and environmental advice from the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and MS-ML. A description of the OCNS is provided in Table H 3 below.

As noted in H 3 the OCNS does not apply to all chemicals. The transfer and use of general items such as certain types of lubricants and oils will not appear on this List of Notified Chemicals.

### Table H 3 The Offshore Chemical Notification Scheme

The Offshore Chemical Notification Scheme (OCNS) applies to all chemicals used in the exploration, exploitation and associated offshore processing of petroleum on the UK Continental Shelf.

It incorporates "operational" chemicals/products\* which, through their mode of use, are expected in some proportion to be discharged. This includes rig washes, pipe dopes, jacking greases and hydraulic fluids used to control wellheads and blow-out preventers. As well as those chemicals used in the actual production of hydrocarbons, those generated offshore (such as sodium hypochlorite) must also be notified.

#### Chemicals not covered

The scheme does not apply to chemicals that might otherwise be used on a ship, helicopter or other offshore structure. Products used solely within domestic accommodation areas – such as additives to potable water systems, paints and other coatings, fuels, lubricants, fire-fighting foams, hydraulic



#### fluids used in cranes and other machinery – are also exempt.

#### Source:

<a href="http://webarchive.nationalarchives.gov.uk/20140108121930/http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-information/offshore-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-chemical-notification-scheme/about-ocns.aspx>">http://www.cefas.defra.gov.uk/industry-chemical-noti

#### Use, Storage and Transport of Chemicals

AOWFL will require their Contractors to ensure that:

- Where relevant, chemicals are selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002 and the Offshore Chemicals (Amendment) Regulations 2011... Where the Development requires the use of chemicals not listed in the List of Notified Chemicals, AOWFL will request approval in writing from MS-LOT prior to their use in accordance with Marine Licence condition 3.1.6;
- All substances and objects deposited are inert (or appropriately coated or protected) and do not contain toxic elements; and
- Suitable bunding and storage facilities are employed to prevent the release of chemicals into the marine environment.

AOWFL will require that these requirements are addressed within Contractors risk assessments and method statements. Each Contractor shall provide a complete chemical inventory within their risk assessments, detailing how and when chemicals are to be used, stored and transported in accordance with good practice guidance, including where relevant (but not limited to):

- Transport of chemicals in line with the International Maritime Dangerous Goods (IMDG) Code;
- Storage of chemicals in line with the UK Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended), the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Enforcement Regulations 2008 (as amended), the CLP Regulation (European Regulation (EC) No 1272/2008) and Health and Safety Executive guidance on offshore storage of chemicals (OCM (Offshore COSHH Method) guidance note 8), in addition to applicable manufacturer's guidance on storage; and
- Use of chemical products in accordance with manufacturer's instructions and recommendations.

On board each vessel a nominated individual will be responsible for ensuring that all chemicals are adequately stored and protected and shall, in conjunction with project and marine personnel, ensure that an efficient Stock Control System is in operation. This system shall include records for receipt, distribution and balance of all chemicals. Chemicals shall be stored securely, where possible.



The nominated individual will ensure that all special instructions and delivery notes from the supplier are rigorously complied with during handling, storage and use. Correct lifting procedures shall be followed to ensure safe, efficient chemical handling. Personnel shall be kept informed of all precautions concerning the storage and handling of chemicals arriving on-board.

Safety Data Sheets (SDS) and Control of Substances Hazardous to Health (COSHH) sheets for each chemical substance will be reviewed to inform the risk assessment and will be appended to the risk assessments. These data sheets must also be held on site where the chemicals are stored and/or used. The risk assessments and method statements will also contain control measures to ensure that risk to the marine environment is minimised during use, storage and transport of chemicals. By law suppliers of chemicals must provide an up to date SDS if a substance is dangerous for supply under the REACH regulation. Control of substances hazardous to health will be undertaken in compliance with COSHH regulations.

# H 1.3 Estimated Hydrocarbon and Chemical Inventory

The type of hydrocarbons and chemicals that may be used during the O&M phases of the Development are listed in Table H 4. Within the table, hydrocarbons are allocated to one of four 'groups' as defined by International Tanker Owners Pollution Federation (ITOPF) classification. Group 1 hydrocarbons are considered to be least persistent (i.e. if spilled, they will dissipate and not form a surface emulsion) whilst Group 4 hydrocarbons are very persistent (i.e. if spilled, they will not evaporate or disperse).

Information on the volume of these hydrocarbon types involved in the Development activity at any one time will be dependent on the specific vessels available to undertake the construction works. Contractors will provide vessel data sheets for each of the main construction vessels to AOWFL. In the event of a pollution incident this information will be made available to the Primary Responder or response cells if required.



Table H 4 Types of hydrocarbons and chemicals to be used during the Operational Phases of the Development

Type of Oil/Chemical	ITOPF Oil Group	Comments
Intermediate Fuel Oil (IFO)	Group 3	Used as fuel for vessels involved in routine O&M activities or any maintenance activities involving use of a jack-up vessel.
Marine Gas Oil (MGO) (Diesel)	Group 2	Used as fuel for vessels involved in routine O&M activities or significant maintenance activity.
Lubricating Oil	Group 3	Used for vessels involved in significant or routine O&M activities.
Lubricating Oil)	Gloup 3	
Transformer Oil	Group 3	Synthetic ester oil used in WTGs.
Hydraulic Oil	Group 2/3	Hydraulic oil used within plant equipment.
Gear Oil	Group 3	Oil for yaw gear in WTG.
Chemicals	N/A	Various chemicals used routinely e.g., paints, paint thinners, solvents, coolants and cleaning fluids.